CD Stereo Radio Recorder AZ8214

/00

Service
Service
Service

Service Manual

For repair information of the cassette mechanism see Service Manual of Tape transport RN/RR General documentation and Tape transport RR Rec II/2 4089 4324 1/34/14/1

COMPACT disc DIGITAL AUDIO

CONTENTS:

		page
Picture		2
Controls; Connections and Component Symbol		3
Self Test Procedure		4-5
Chip Handling and ESD Text		6
Specification		7
Set Wiring		8-9
Tuner	component layout	10
	chip and component layout	11
	adjustment table	12
	circuit diagram	13-15
Power	component layout	16-18
	circuit diagram	19-20
Tape Core	circuit diagram	21-22
	component layout	23-24
	adjustment table	25
Combi	component layout	26-28
	circuit diagram I	29-30
	circuit diagram II	31-32
RCD	circuit diagram I	33-35
	circuit diagram II	36-38
	adjustment table	39
	component layout	40-41
Exploded View		42-43
Mechanical Partslist		44
Electrical Partslist		44-46
Safety Text		47

(S) Varning!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad.
Betrakta ej strålen.

CLASS 1
LASER PRODUCT
3122 110 03420

(SF) Varo!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio

PHILIPS

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

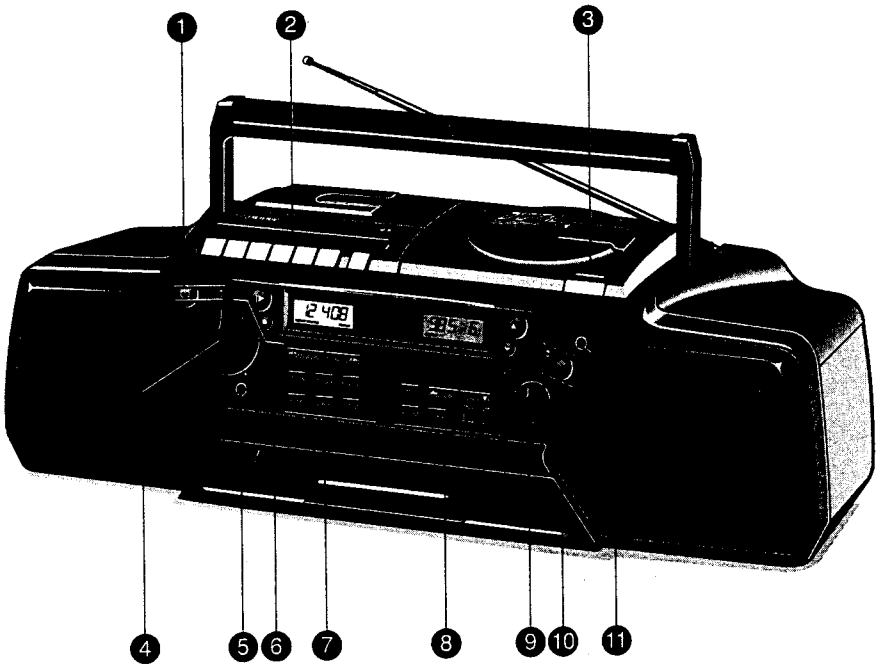
Subject to modification

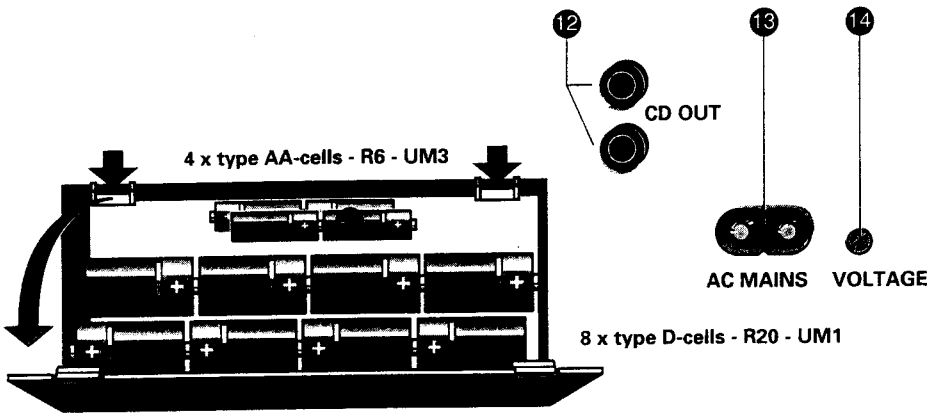
4822 725 23109

Printed in The Netherlands

PHILIPS

CONNECTIONS AND CONTROLS





1	Power Switch	1302	8	Tuner Control	
2	Tape Control		9	Tone Control	3580
3	CD Eject		10	TBG Switch	1583
4	Volume Control	3600	11	Mic Socket	1585
5	Headphone Socket	1303	12	CD Output Socket L/R	1304/1305
6	Mode Selector	1580	13	AC Mains Socket	1301
7	CD Control		14	Voltage Selector	1307

Carbon film 0.2 W CR16	70°C	5%	
Carbon film 0.33 W CR25	70°C	5%	
Carbon film 0.5 W CR37	70°C	5%	
Standard film 0.5 W SFR16T	70°C	5%	
Standard film 0.4 W SFR25	70°C	5%	
Metal film 0.6 W MRS25	70°C	5%	
Safety resistor			

(C) Chip component

Plate ceramic Tuning < 120 pF		2%
Others		−20/+80%
Tubular ceramic		
Polystyrene film / foil		1%
Polyestor Film / foil		10%
Mylar		10%
Electrolytic		

*a	= 2.5 V
b	= 4 V
c	= 6.3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
j	= 100 V
k	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1.6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V

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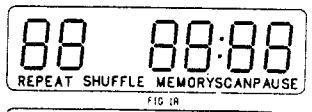
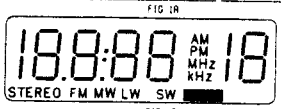
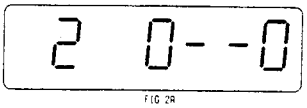
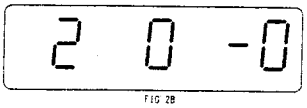
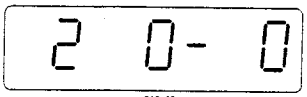
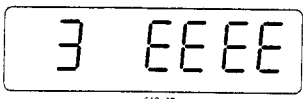
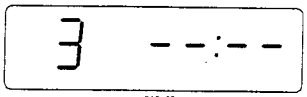
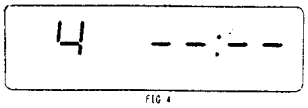
SERVICE TEST PROGRAMME

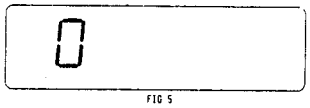
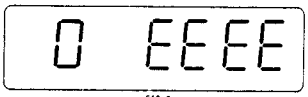
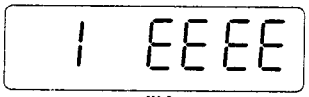
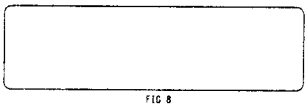
Following can be tested with **testprogramme 1:**

* Displays (CD + Tuner)
* Sledge motor
* Focus servo
* Track servo

Operating sequence	**Display shows**	**Remarks**	**In case of problems check**
Insert any disc in CD–compartment and shut CD–door. To start testprogramme 1 set mode switch to "radio" or "tape" first. Hold switches "display" and "clear" depressed while setting mode switch to "CD" → now **step 1** of the test programme is reached.	 FIG 1A  FIG 1B	During step 1 – 3 "mute" is active.	connection Display
Press "play" to get to **step 2** Press "next" Press "previous"	 FIG 2A  FIG 2B  FIG 2C	From step 2 onwards tuner display is switched off. Sledge will be moved outside as long as "next" will be hold depressed (display shows fig.2b) and moved inside as long as "previous" will be hold depressed (display shows fig.2c).	Sledge motor and driver circuit for sledge motor
Press "play" to get to **step 3**	 FIG 3A  FIG 3B	Laser is now switched on and objective will be focussed (while focussing display shows fig.3a). As soon as focus is o.k. display shows fig.3b and disc motor is switched on. Sledge servo and tracking servo are switched off → "tracking offset" can be adjusted.	Focus servo circuit
Press "play" to get to **step 4** Press "next" Press "previous"	 FIG 4	Track servo loop is active → **normal "play" mode.** "Mute" will be switched off after pressing "next" or "previous". By pressing "next" or "previous" track servo will jump in steps of either 16 tracks forward or backward.	
Press "stop" to get back in normal CD-mode		By pressing "stop" Service Testprogramme can be interrupted during each step.	

With testprogramme 2 **FREQUENCY of CLOCK OSCILLATOR** can be tested respectively adjusted.

Attention: Disc door (door switch) must be open during testprogramme 2 to avoid overloading of the µP.

Operating sequence	Display shows	Remarks
To start **testprogramme 2** set mode switch to "radio" or "tape" first. Hold switches "clear" , "store" and "display" depressed while setting mode switch to "CD". Now **step 1** has been reached. Release switches "clear" , "store" and "display". Press "play".	 FIG 5  FIG 6  FIG 7	CD display shows fig.5 as long as "clear", "store" and "display" will be hold depressed. Tuner display shows time. After releasing "clear", "store" and "display" display shows fig.6 Display will shows Fig 7
Press "play" again to get to **step 2.**	 FIG 8	Both displays are switched off. Frequency of clock oscillator can now be checked or adjusted: * measure on ⟨1⟩ (pin 36 of µP) * adjust frequency to 32 Hz ± 10 ppm (or period of 31,25 ms ± 10 ppm) with 2406
Press "play" to get to step 1 of testprogramme 1 or press "stop" to get in normal CD mode.		By pressing "stop" Service Test Programme can be interrupted during each step.

Loading SERVICE FREQUENCIES for TUNER mode

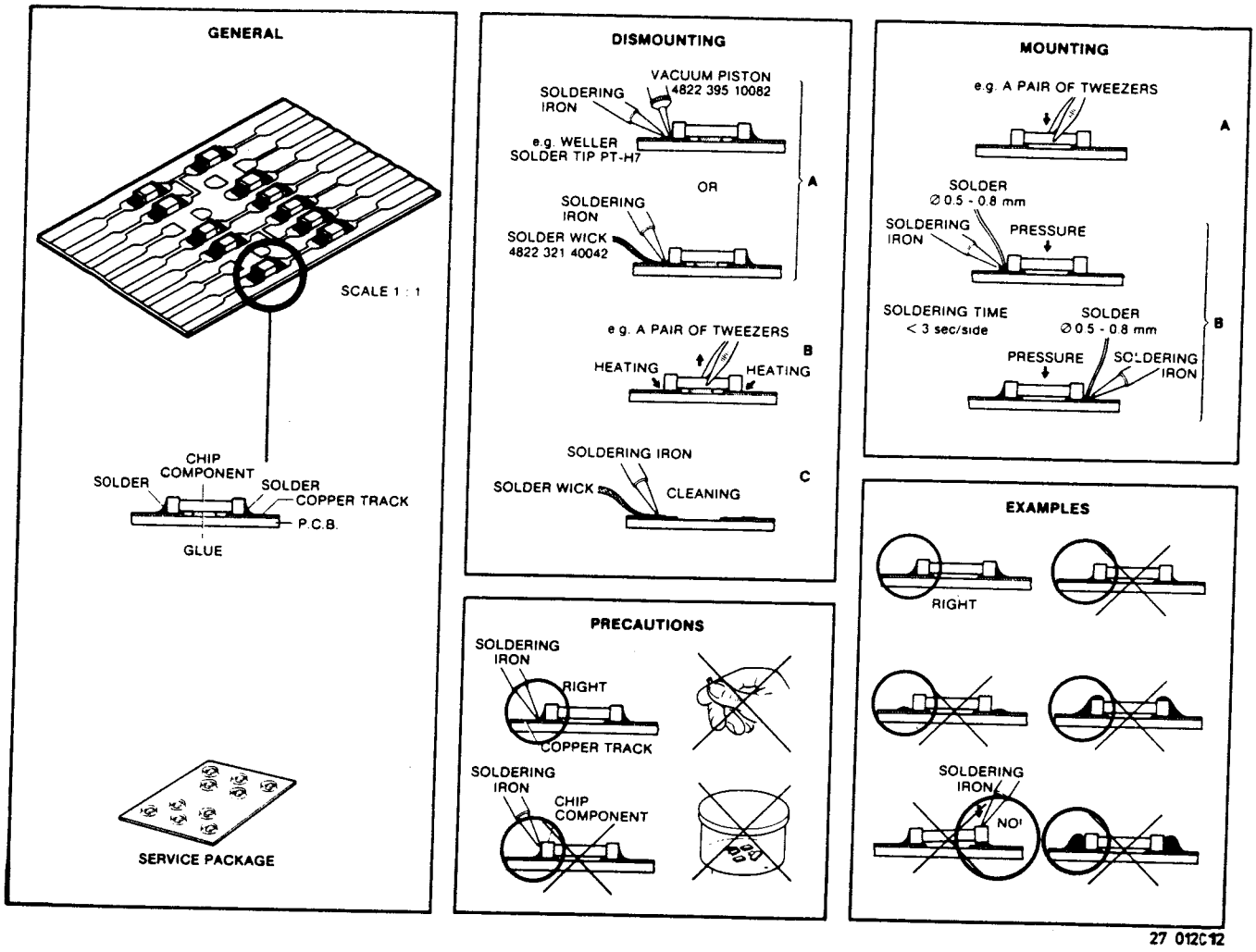
Reset µP by disconnecting all supplies. Wait about 15 seconds to enable discharging of all elcos. Then give supply to the set again.

Following frequencies have now been loaded in the EEROM of the µP:

Band	P1	P2	P3	P4	P5	P6	Unit
FM	87,5	108	93,7	91,8	98	104,9	MHz
MW	522	1611	549	1494	567	558	kHz
LW	148	284	198	252	153	261	kHz
SW	5,90	18,05	6,20	17,00	9,55	5,95	MHz

Band	P1	P2	P3	P4	P5	P6	Unit
FM	87,5	108	93,7	91,8	98	1049	MHz
MW (9KHz grid)	522	1611	549	1494	567	558	kHz
MW (10KHz grid)	520	1710	550	1500	570	1610	kHz

HANDLING CHIP COMPONENTS



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GB **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

F **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D **WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

NL **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SPECIFICATION

GENERAL

Mains voltage		: 120V - 220V - 240V
Mains selection/setting		: Serviceable: set at 220V
Mains frequency		: 50Hz - 60Hz
Battery		: 12V (R20 x 8)
Backup battery		: 6V (R6 x 4)
Power consumption		: 34W max.
Dimension (W x D x H)		: 614 x 215 x 203mm
Weight		: 5.8kg

TUNER : FM SECTION

Tuning range		: 87.5MHz - 108MHz
IF frequency		: 10.7MHz
Sensitivity at 26dB S/N		: <6μV
Selectivity at 600kHz bandwidth		: >20dB
IF rejection		: >50dB
Image rejection		: >20dB

TUNER : AM SECTION

Tuning range	SW	: 5.9MHz - 18.05MHz
	MW	: 522kHz - 1611kHz
	LW	: 148kHz - 284kHz
IF frequency		: 450kHz
Sensitivity at 26dB S/N	SW	: <400μV
	MW	: <3.5mV/M
	LW	: <6.0mV/M
Selectivity at 18kHz bandwidth	SW	: >16dB
	MW	: >16dB
	LW	: >20dB
IF rejection		: >30dB
Image rejection	SW	: >6dB
	MW	: >28dB
	LW	: >30dB

AMPLIFIER

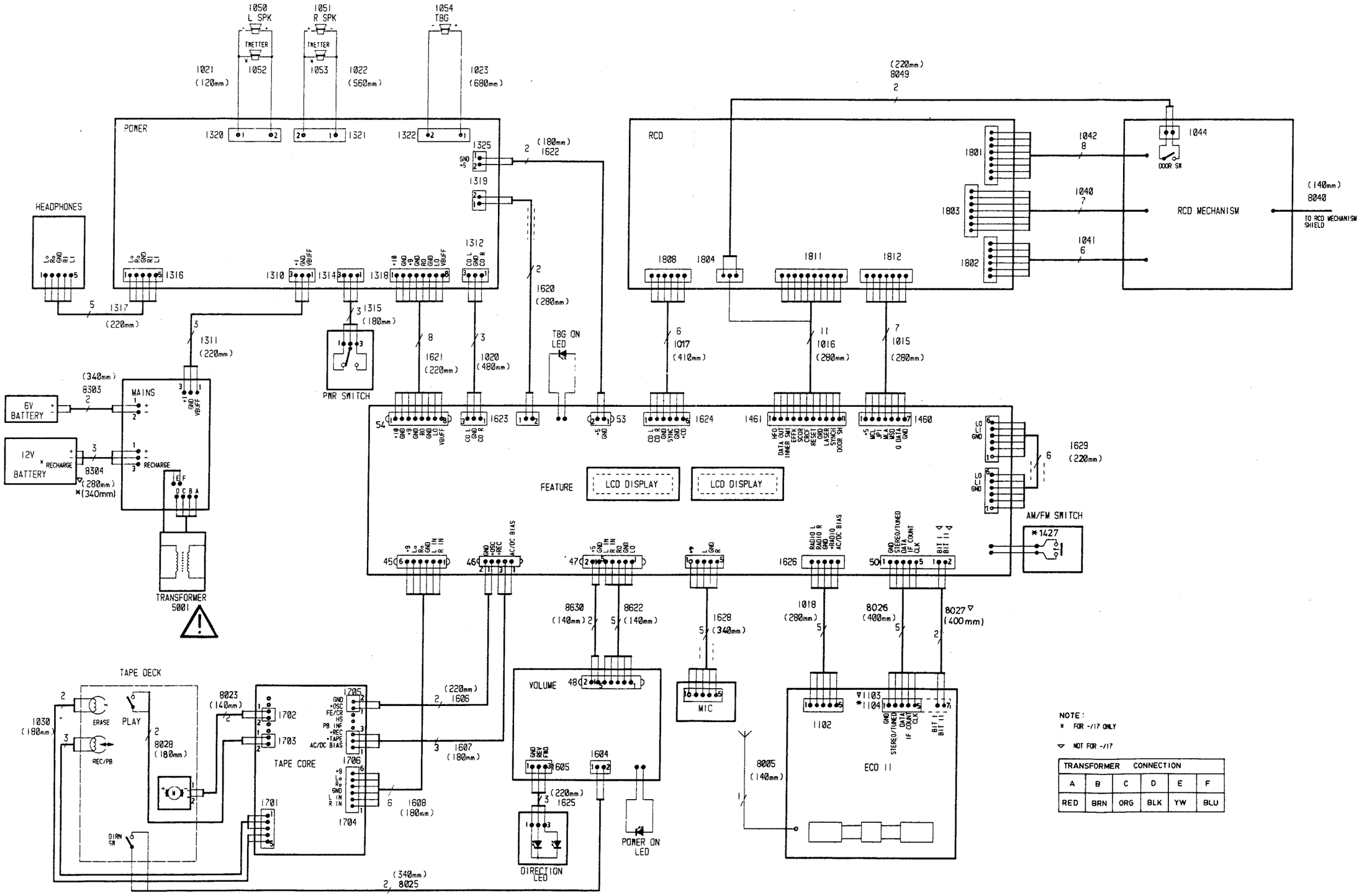
Output power at 10% distortion		: 2 x 2W -1dB 1 x 4W -1dB
Speaker impedance		: 2 x 8Ω L/R 1 x 16Ω Bass
Frequency response within -3dB		: 250Hz - 8kHz mid-range 30Hz - 100Hz Bass
Tone control		: ±7dB at 10kHz
Mic-input sensitivity		: 800mV at 10kΩ
CD-output sensitivity		: 800mV at 4.7kΩ
Headphone output at 32Ω		: 13mW

CASSETTE RECORDER

Number of tracks		: 2 x 2 stereo
Tape speed		: 4.76 cm/sec ± 2%
Wow and flutter		: <0.35%
Fast-wind time C60		: 130 sec
Bias system	AM	: DC bias
	Others	: 57kHz ± 15kHz
Rec playback frequency response within -8dB		: 250Hz - 2kHz (AM) 250Hz - 6.3kHz (others)
Signal to Noise ratio	AM rec	: >22dB
	Others	: >40dB

COMPACT DISC

Frequency response within +2dB/-4dB	: 20Hz - 20kHz
Signal/Hiss ratio	: >80dB
Distortion at 1kHz	: 0.5%
Channel difference at 1kHz	: <2dB
Channel crosstalk at 1kHz	: 50dB
De-emphasis	: 0 or 15/50 uS (Switched by subcode on the disc)



NOTE :

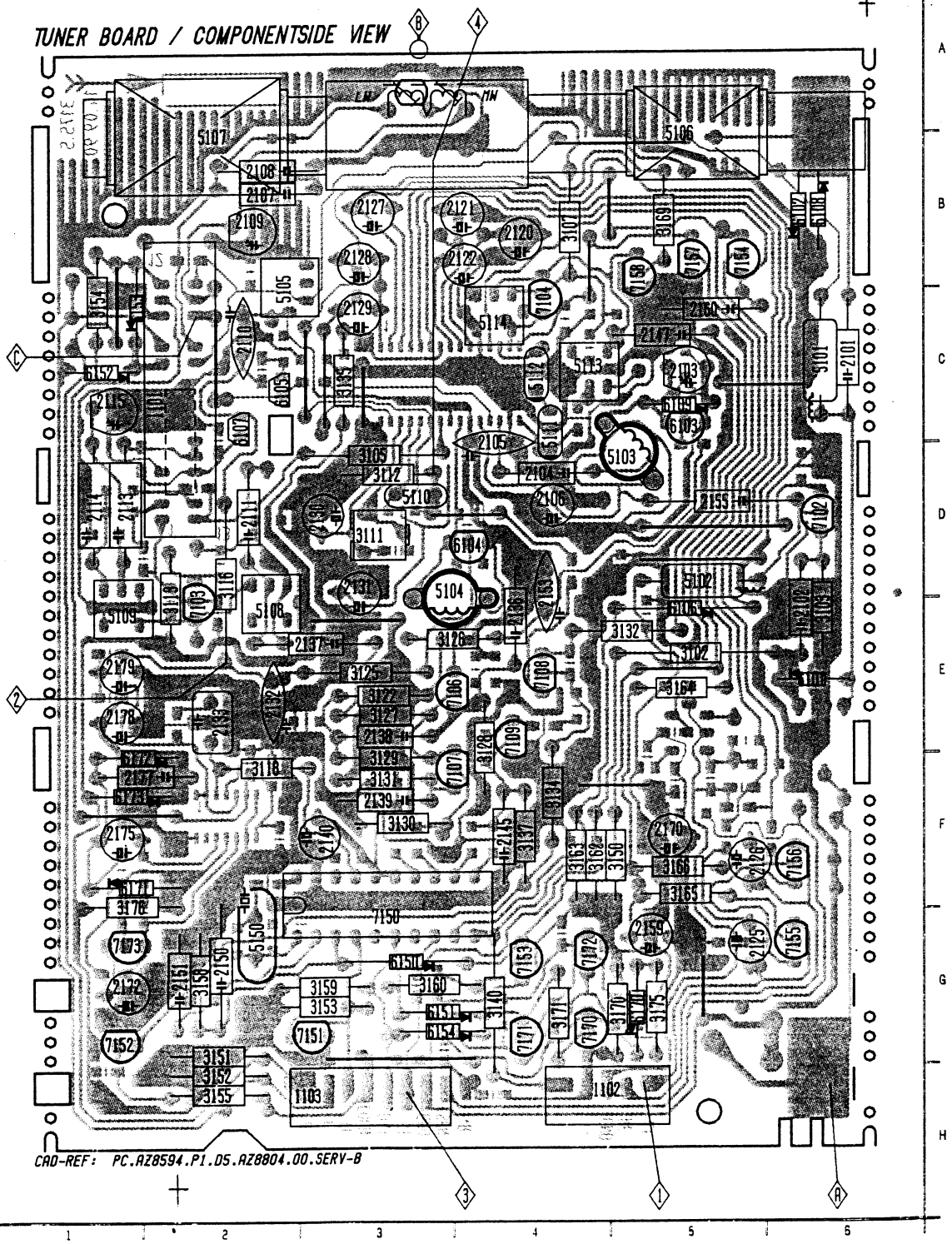
* FOR -/17 ONLY

▽ NOT FOR -/17

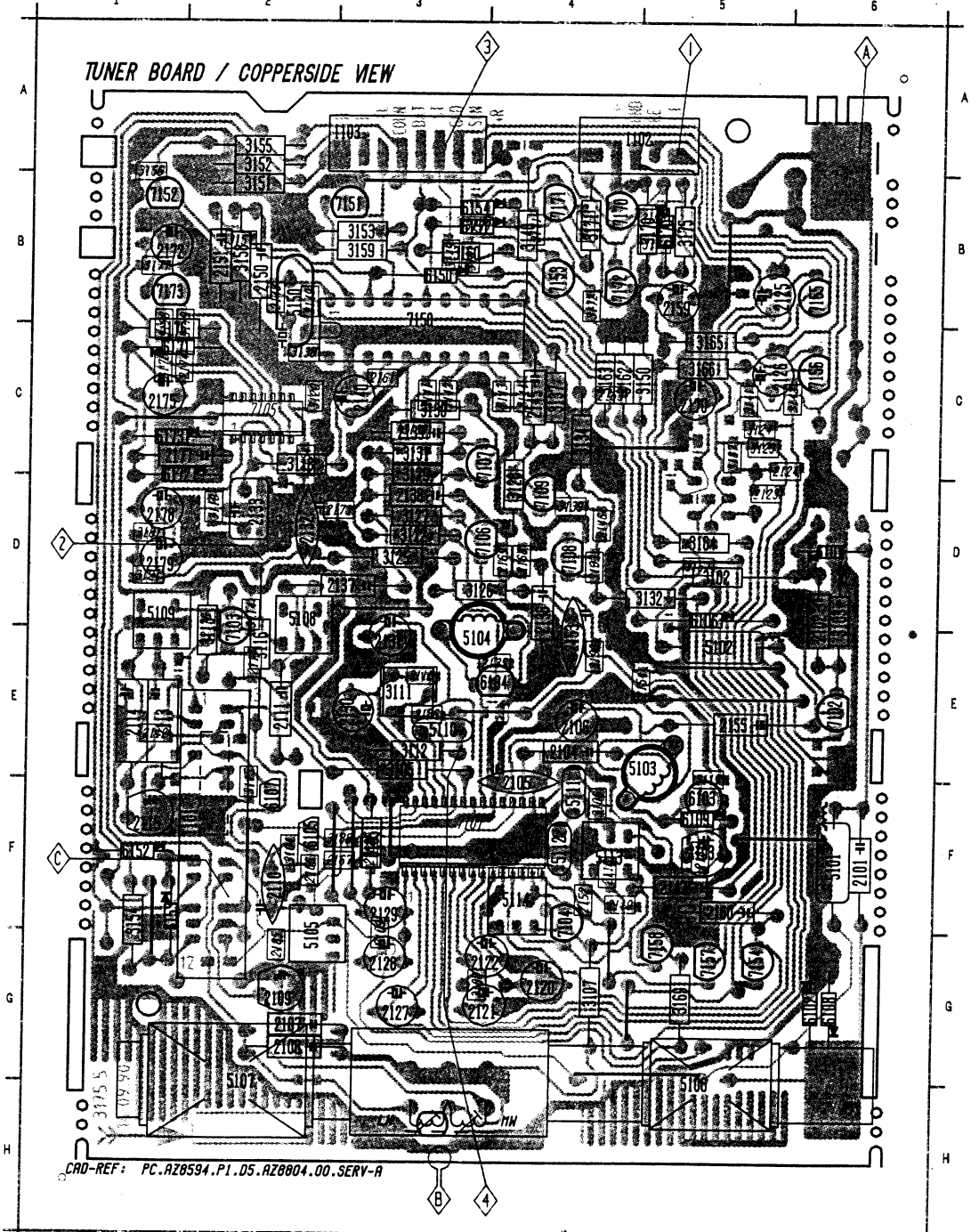
TRANSFORMER CONNECTION					
A	B	C	D	E	F
RED	BRN	ORG	BLK	YW	BLU

1101	C 2	2115	C 1	2139	F 3	3102	E 5	3131	F 3	3163	F 4	5108	E 2	6109	C 5	7109	E 4		
1102	H 4	2120	B 4	2140	F 3	3103	E 5	3132	E 5	3164	E 5	5109	E 1	6150	G 3	7150	G 3		
1103	H 3	2121	B 4	2145	F 4	3105	D 3	3134	F 4	3165	F 5	5110	D 3	6151	G 3	7151	G 3		
2101	C 6	2122	B 4	2147	C 5	3107	B 4	3135	C 3	3166	F 5	5111	C 4	6152	C 1	7152	G 1		
2102	E 6	2125	G 5	2150	G 2	3111	D 3	3137	F 4	3169	B 5	5112	C 4	6153	C 1	7153	G 4		
2103	C 5	2126	F 5	2151	G 2	3112	D 3	3140	G 4	3170	G 5	5113	C 4	6154	G 3	7154	B 5		
2104	D 4	2127	B 3	2153	D 4	3113	D 2	3150	F 5	3171	G 4	5114	C 4	6170	G 5	7155	G 6		
2105	C 4	2128	B 3	2155	D 5	3116	D 2	3151	G 2	3175	G 5	5150	G 2	6171	F 1	7156	F 6		
2106	D 4	2129	C 3	2159	G 5	3118	F 2	3152	H 2	3176	F 1	6101	E 6	6172	E 1	7157	B 5		
2107	B 2	2130	D 3	2160	C 5	3122	E 3	3153	G 3	5101	C 6	6102	B 6	6173	F 1	7158	B 5		
2108	B 2	2131	D 3	2170	F 5	3125	E 3	3154	C 1	5102	D 5	6103	C 5	7102	D 6	7170	G 4		
2109	B 2	2132	E 2	2172	G 1	3126	E 3	3155	H 2	5103	D 5	6104	D 4	7103	D 2	7171	G 4		
2110	C 2	2133	E 2	2175	F 1	3127	E 3	3158	G 2	5104	D 3	6105	C 2	7104	C 4	7172	G 4		
2111	D 2	2136	E 4	2177	F 1	3128	E 4	3159	G 3	5105	B 2	6106	E 5	7106	E 3	7173	G 1		
2113	D 1	2137	E 3	2178	E 1	3129	F 3	3160	G 3	5106	A 5	6107	C 2	7107	F 3				
2114	D 1	2138	E 3	2179	E 1	3130	F 3	3162	F 4	5107	A 2	6108	B 6	7108	E 4				

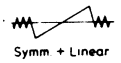
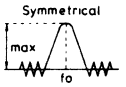
TUNER BOARD / COMPONENTSIDE VIEW



1101	F 2	2115	F 1	2139	C 3	3102	D 5	3131	C 3	3163	C 4	5108	D 2	6109	F 5	7109	D 4		
1102	A 4	2120	G 4	2140	C 3	3103	D 6	3132	D 5	3164	D 5	5109	D 1	6150	B 3	7150	B 3		
1103	A 3	2121	G 4	2145	C 4	3105	E 3	3134	C 4	3165	C 5	5110	E 3	6151	B 3	7151	B 3		
2101	F 6	2122	G 4	2147	F 5	3107	G 4	3135	F 3	3166	C 5	5111	F 4	6152	F 1	7152	B 1		
2102	D 6	2125	B 5	2150	B 2	3111	E 3	3137	C 4	3169	G 5	5112	F 4	6153	F 1	7153	B 4		
2103	F 5	2126	C 5	2151	B 2	3112	E 3	3140	B 4	3170	B 5	5113	F 4	6154	B 3	7154	G 5		
2104	E 4	2127	G 3	2153	E 4	3113	E 2	3150	C 5	3171	B 4	5114	F 4	6170	B 5	7155	B 6		
2105	F 4	2128	G 3	2155	E 5	3116	E 2	3151	B 2	3175	B 5	5150	B 2	6171	C 1	7156	C 6		
2106	E 4	2129	F 3	2159	B 5	3118	C 2	3152	A 2	3176	C 1	6101	D 6	6172	C 1	7157	G 5		
2107	G 2	2130	E 3	2160	F 5	3122	D 3	3153	B 3	5101	F 6	6102	G 6	6173	C 1	7158	G 5		
2108	G 2	2131	E 3	2170	C 5	3125	D 3	3154	F 1	5102	E 5	6103	F 5	7102	E 6	7170	B 4		
2109	G 2	2132	D 2	2172	B 1	3126	D 3	3155	A 2	5103	E 5	6104	E 4	7103	D 2	7171	B 4		
2110	F 2	2133	D 2	2175	C 1	3127	D 3	3158	B 2	5104	E 3	6105	F 2	7104	F 4	7172	B 4		
2111	E 2	2136	D 4	2177	C 1	3128	D 4	3159	B 3	5105	G 2	6106	D 5	7106	D 3	7173	B 1		
2113	E 1	2137	D 3	2178	D 1	3129	C 3	3160	B 3	5106	G 5	6107	F 2	7107	C 3				
2114	E 1	2138	D 3	2179	D 1	3130	C 3	3152	C 4	5107	G 2	6108	G 6	7108	D 4				



2112	E 1	2135	G 4	2152	F 4	3109	G 1	3104	F 2	3119	D 2	3139	D 4	3168	C 3	3187	F 5		
2116	D 1	2141	C 3	2154	E 5	2171	B 1	3106	F 4	3120	C 2	3141	C 5	3170	B 1	3188	F 2		
2117	E 2	2142	C 3	2161	C 3	2173	D 3	3108	G 4	3121	D 1	3142	C 6	3173	B 1	3190	F 4		
2118	F 1	2143	C 1	2162	F 3	2174	C 2	3109	G 3	3123	C 5	3149	B 3	3174	B 3	3198	B 2		
2119	F 4	2144	C 1	2163	C 4	2176	C 1	3110	E 3	3124	C 5	3156	B 1	3175	B 1	3199	B 4		
2123	G 5	2145	C 1	2167	F 2	2181	F 5	3114	D 2	3133	C 4	3157	B 2	3176	C 1	3131	F 5		
2124	C 2	2148	B 2	2167	F 3	2185	G 2	3115	F 2	3136	C 4	3161	B 2	3178	C 1	3195	G 5		
2125	B 2	2149	B 2	2164	D 4	2186	B 3	3117	F 1	3140	C 1	3162	B 2	3179	C 2				

SK...	FREQUENCY	I/P	DISPLAY	ADJUST	O/P	SCOPE/METER
Varicap alignment						
FM 87.5-108MHz			108MHz 87.5MHz	5104 check	2	9.0V ± 0.1V 2.1V ± 0.3V
SW 5.9-18.05MHz			18.05MHz 5.9MHz	5108 check		9.0V ± 0.1V 2.1V ± 0.3V
LW 148-284kHz			284kHz 148kHz	5109 check		9.0V ± 0.1V 2.1V ± 0.3V
MW 522-1611kHz			1611kHz 522kHz	2115 check		8.3V ± 0.1V 2.1V ± 0.3V
IF alignment						
FM	108MHz △f=500kHz (50Hz)	A	108MHz	check	4	
MW	549kHz + △f=10kHz (50Hz)	C	549kHz	5114 5113	1	
RF alignment						
FM #	108MHz 87.5MHz	A	108MHz 87.5MHz	2103 5103	1	max.
SW *	6.2MHz		6.2MHz	5105		
MW *	549kHz 1494kHz	B	549kHz 1494kHz	5106 2109		
LW *	160kHz		160kHz	5107		
Stereo decoder						
FM	98MHz carrier	A	98MHz	3111	3	76 ± 0.3kHz

\+ Via 100nF
* Mod 1kHz 30% AM
# Mod 1kHz △f = 22.5kHz

↕ Repeat

7101		7105	
1	1.0V	1	-
2	-	2	-
3	-	3	-
4	-	4	0V
5	1.5V	5	-
6	1.5V	6	0V
7	5.4V	7	0V
8	3.6V	8	-
9	1.6V	9	0V
10	0.8V	10	3.6V
11	0V	11	5.9V
12	-	12	2.4V
13	1.3V	13	-
14	0V	14	10.7V
15	1.3V		
16	0.8V		
17	0V		
18	0.35V		
19	1.25V		
20	1.25V		
21	1.25V		
22	1.25V		
23	1.25V		
24	1.25V		
25	-		
26	3V		
27	1.4V		
28	1.7V		
29	1.0V		
30	0V		

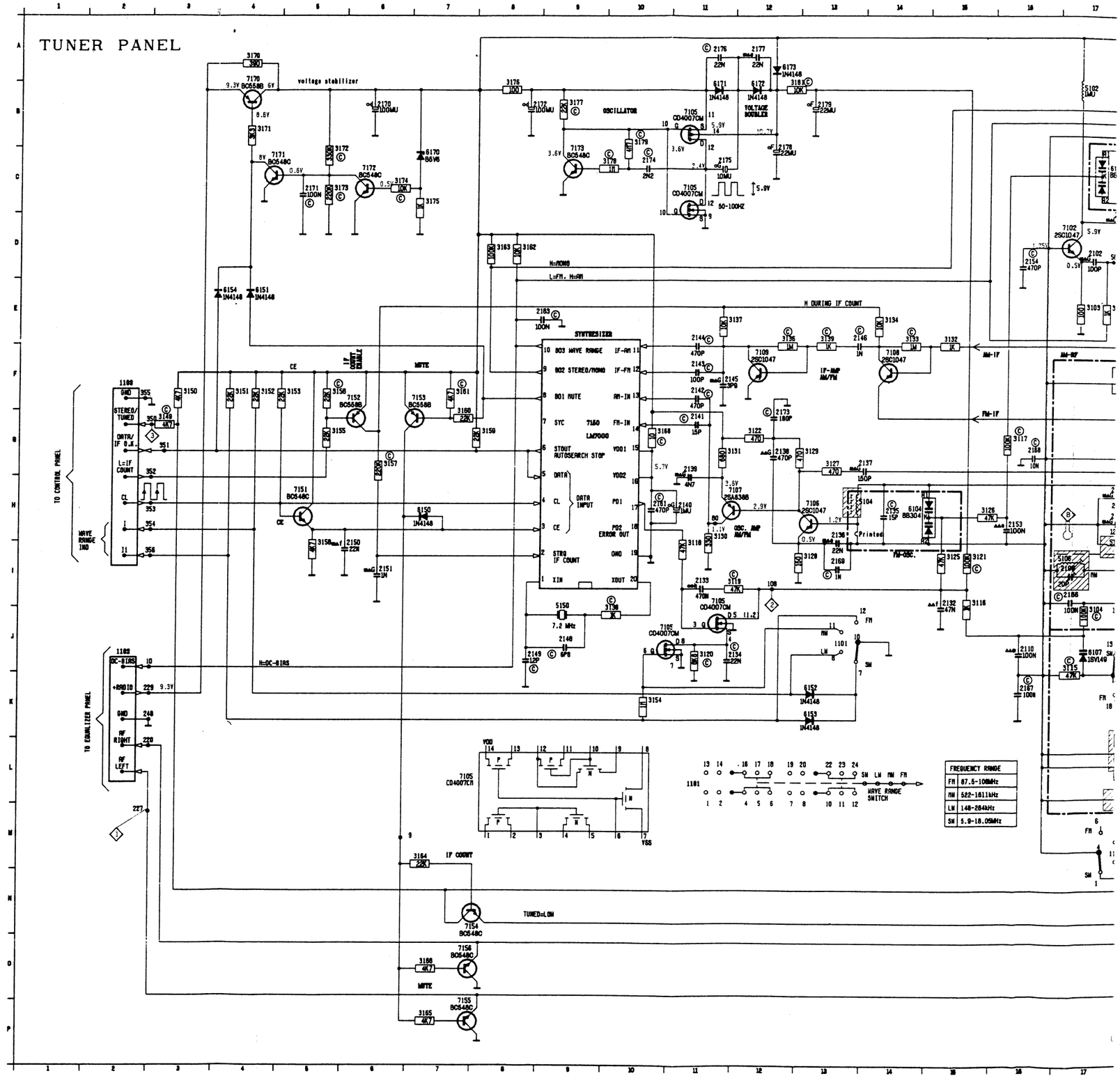
7102		7106	
e	0.5V	e	0.5V
b	1.25V	b	1.2V
C	5.9V	C	2.9V

7107		7170	
e	3.6V	e	9.3V
b	2.9V	b	8.6V
c	1.1V	c	6.0V

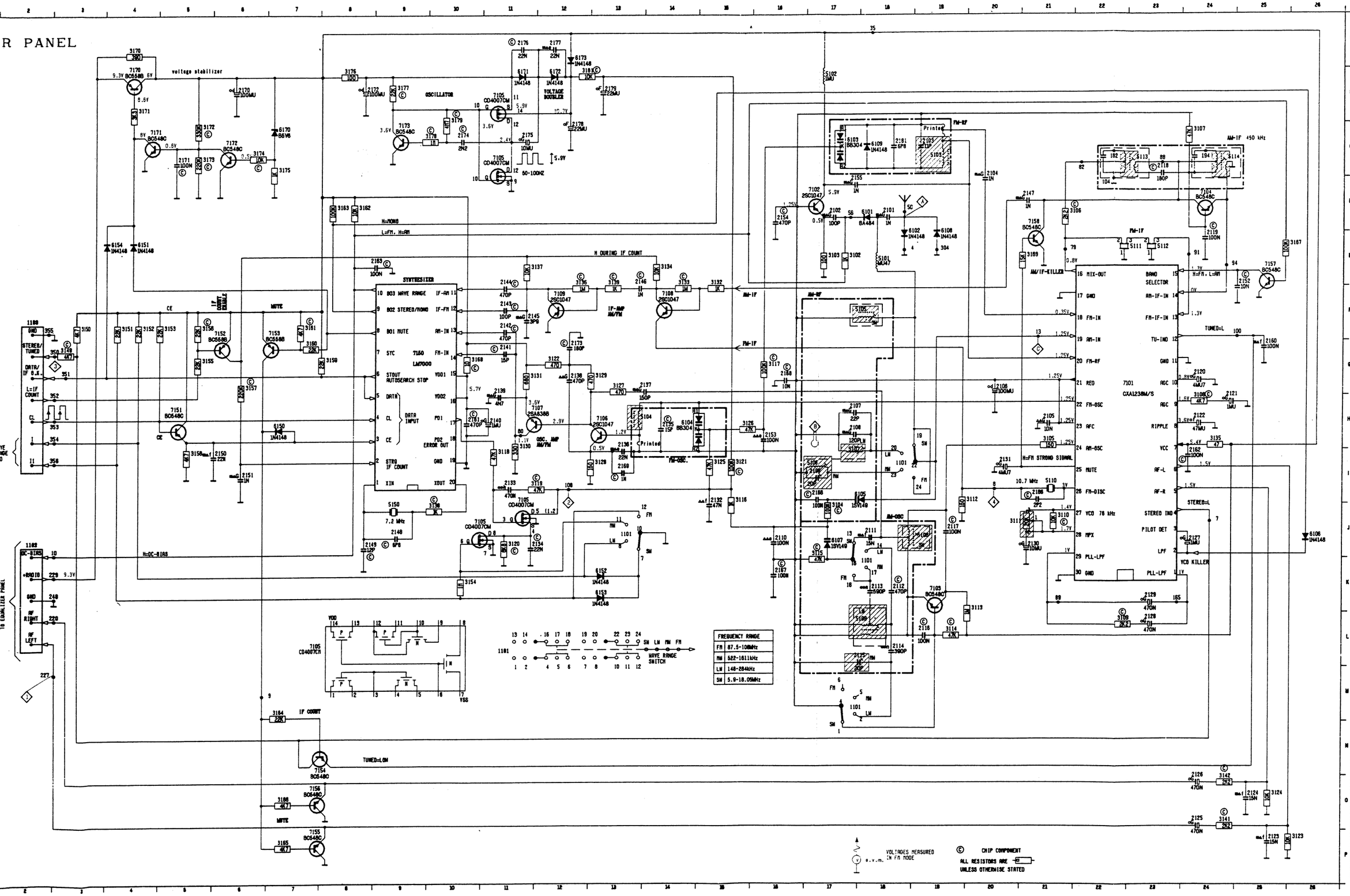
7171		7172	
e	0V	e	0V
b	0.6V	b	0.5V
c	8.0V	c	0.6V

....V measured in radio FM on position

TUNER PANEL



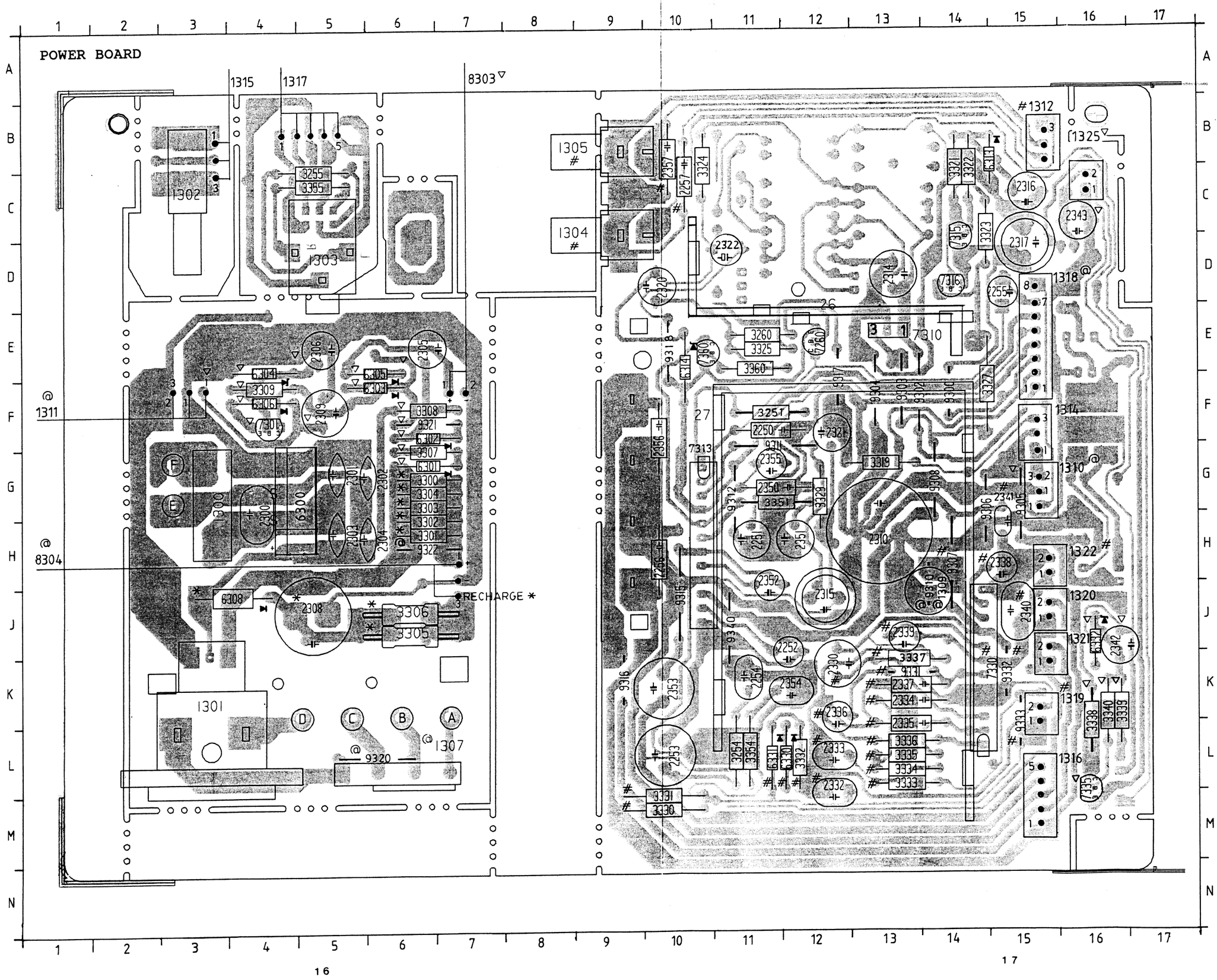
R PANEL



FREQUENCY RANGE	
FM	87.5-108MHz
MW	522-1611kHz
LW	148-284kHz
SW	5.9-18.05MHz

1101	J13	3158	I 5
1101	I18	3159	G 8
1101	K18	3160	G 7
1101	M17	3161	F 7
1102	J 2	3162	D 8
1103	F 2	3163	D 8
2101	D18	3164	M 7
2102	D17	3165	F 7
2103	C19	3166	D 7
2104	C20	3167	E25
2105	H21	3168	D10
2106	G20	3169	E21
2107	M17	3170	A 4
2108	M17	3171	B 4
2109	I17	3172	C 5
2110	J16	3173	C 5
2111	J18	3174	C 6
2112	N18	3175	C 7
2113	K18	3176	B 8
2114	L18	3177	B 9
2115	L18	3178	C10
2116	L19	3179	B10
2117	J19	3181	B12
2118	C23	5101	E18
2119	E24	5102	B17
2120	G24	5103	C19
2121	G24	5104	H13
2122	H24	5105	F18
2123	P25	5106	I17
2124	Q25	5107	M17
2125	Q24	5108	J19
2126	N24	5109	L18
2127	J24	5110	I21
2128	L23	5111	E22
2129	K23	5112	E23
2130	J21	5113	C23
2131	I20	5114	C25
2132	I15	5150	I 9
2133	I11	6101	D18
2134	J11	6102	D18
2135	H14	6103	C17
2136	H13	6104	H15
2137	G14	6105	I18
2138	G12	6106	J26
2139	G11	6107	J17
2140	H11	6108	D19
2141	G11	6109	C18
2142	F11	6150	H 7
2143	F11	6151	E 4
2144	E11	6152	K13
2145	F11	6153	K13
2146	E13	6154	E 3
2147	D21	6170	C 7
2148	J 9	6171	B11
2149	J 8	6172	B12
2150	I 5	6173	R12
2151	I 6	7101	G22
2152	E24	7102	D17
2153	H16	7103	K19
2154	D16	7104	D24
2155	C17	7105	J10
2160	Q25	7105	I11
2161	H10	7105	C11
2162	I24	7105	B11
2163	E 9	7106	H13
2166	I17	7107	H12
2167	K16	7108	F14
2168	G16	7109	F12
2169	I13	7150	G 9
2170	B 6	7151	H 5
2171	C 5	7152	F 6
2172	B 8	7153	F 7
2173	G12	7154	N 8
2174	C10	7155	P 7
2175	C11	7156	Q 7
2176	A11	7157	E25
2177	A12	7158	D21
2178	B12	7170	A 4
2179	B13	7171	C 4
2181	C18	7172	C 6
2186	I21	7173	C 9

POWER BOARD



026	D12	3304	G6
027	F10	3305	J6
1300	G3	3306	J6
1301	K3	3307	G6
1302	C3	3308	F6
1303	D5	3309	F4
1304	C8	3319	G13
1305	B8	3321	C14
1307	A7	3322	C14
1309	J14	3323	C15
1310	G16	3324	C10
1311	F1	3325	E11
1312	B15	3327	F14
1314	F16	3329	G12
1315	A4	3330	M10
1316	L16	3331	M10
1317	A4	3332	L12
1318	D16	3333	L13
1319	K16	3334	L13
1320	J16	3335	L13
1321	J16	3336	L13
1322	H16	3337	K13
1325	B16	3338	L16
2250	F11	3339	K16
2251	H11	3340	K16
2252	J12	3351	G11
2253	L10	3354	L11
2254	K11	3355	C5
2255	D15	3360	E11
2256	H10	6300	G5
2257	C10	6301	G6
2300	H4	6302	F6
2301	G5	6303	F6
2302	G6	6304	E4
2303	H5	6305	E6
2305	E6	6306	F4
2306	E5	6308	J4
2308	J5	6313	B15
2309	F5	6314	E10
2310	H13	6330	L12
2312	F12	6331	L11
2314	D13	6332	J16
2315	J12	7260	E12
2316	C15	7301	F4
2317	D15	7310	E14
2320	D10	7313	G10
2322	D11	7315	D14
2330	K12	7316	D14
2332	L12	7330	K15
2333	L12	7335	L16
2334	K13	7360	E10
2335	L13	8303	A7
2336	K12	8304	H1
2337	K13	9300	F14
2338	H15	9302	F13
2339	J13	9303	F13
2340	J15	9304	F13
2341	G15	9305	G15
2342	J16	9306	H14
2343	C16	9307	H14
2350	G11	9308	G14
2351	H12	9310	J14
2352	H11	9311	F11
2353	K10	9312	G11
2354	K12	9315	J10
2355	G11	9316	K9
2356	G10	9317	F12
2357	C10	9318	C12
3251	F11	9320	L6
3254	L11	9321	F6
3255	C5	9322	H6
3260	E11	9331	K13
3300	G6	9332	K15
3301	H6	9333	L15
3302	H6	9340	J11
3303	G6		

MO
AZ82
AZ82
AZ80
AZ80
AZ81
AZ81
AZ81

+1 : 12V

+9 : 8.6V

+10 : 10V

+5A : 5.4V

7330		7105		7301		7335	
1	1.3V	1	1.3V	e	5.2V	e	5.4V
2	0V	2	0V	b	5.8V	b	6.0V
3	11.8V	3	11.8V	C	9.1V	C	9.2V
4	0V	4	0V				
5	0V	5	0V	7310			
6	1.3V	6	1.3V				
7	6.3V	7	6.0V	1	10.0V		
8	11.0V	8	10.3V	2	12.0V		
9	0V	9	0V	3	0V		
10	12V	10	12V				
11	11.0V	11	10.3V				
12	6.3V	12	6.0V				

....V meaured in tape mode position

MODELS	ITEM MARKED			ITEM MARKED @								
	*	▽	#	1307	1309	9310	9320	9322	1310	1311	1318	8304
AZ8214/00	DEL	ADD	ADD	ADD	ADD	DEL	DEL	ADD	3P	3W	8P	2W
AZ8210/17	ADD	ADD	ADD	ADD	DEL	ADD	DEL	DEL	3P	3W	8P	3W
AZ8010/17	ADD	DEL	DEL	DEL	DEL	DEL	ADD	DEL	2P	2W	7P	3W
AZ8012/00	DEL	DEL	DEL	ADD	DEL	DEL	DEL	ADD	2P	2W	7P	2W
AZ8110/17	ADD	DEL	ADD	ADD	DEL	ADD	DEL	DEL	2P	2W	7P	3W
AZ8114/00	DEL	DEL	ADD	ADD	ADD	DEL	DEL	ADD	2P	2W	7P	2W
AZ8110/10	DEL	DEL	ADD	DEL	DEL	ADD	ADD	ADD	2P	2W	7P	2W

POWER BOARD DIAGRAM

ITEM NO.	AZ82XX	AZ81XX	AZ80XX
1310	3 PIN	2 PIN	2 PIN
1318	8 PIN	7 PIN	7 PIN
2253 2352	470U	470U	1000U

* FOR -/17 ONLY

NOT FOR -/17 & -/10

▼ FOR AZ8210 & AZ8214 ONLY

@ NOT FOR AZ8010/17 & AZ8110/10

@ 1307

110V
220V
240V

■1300

FOR -/17	T1.6A
FOR -/00 -/10	T1.25A

FOR AZ81XX & AZ82XX ONLY

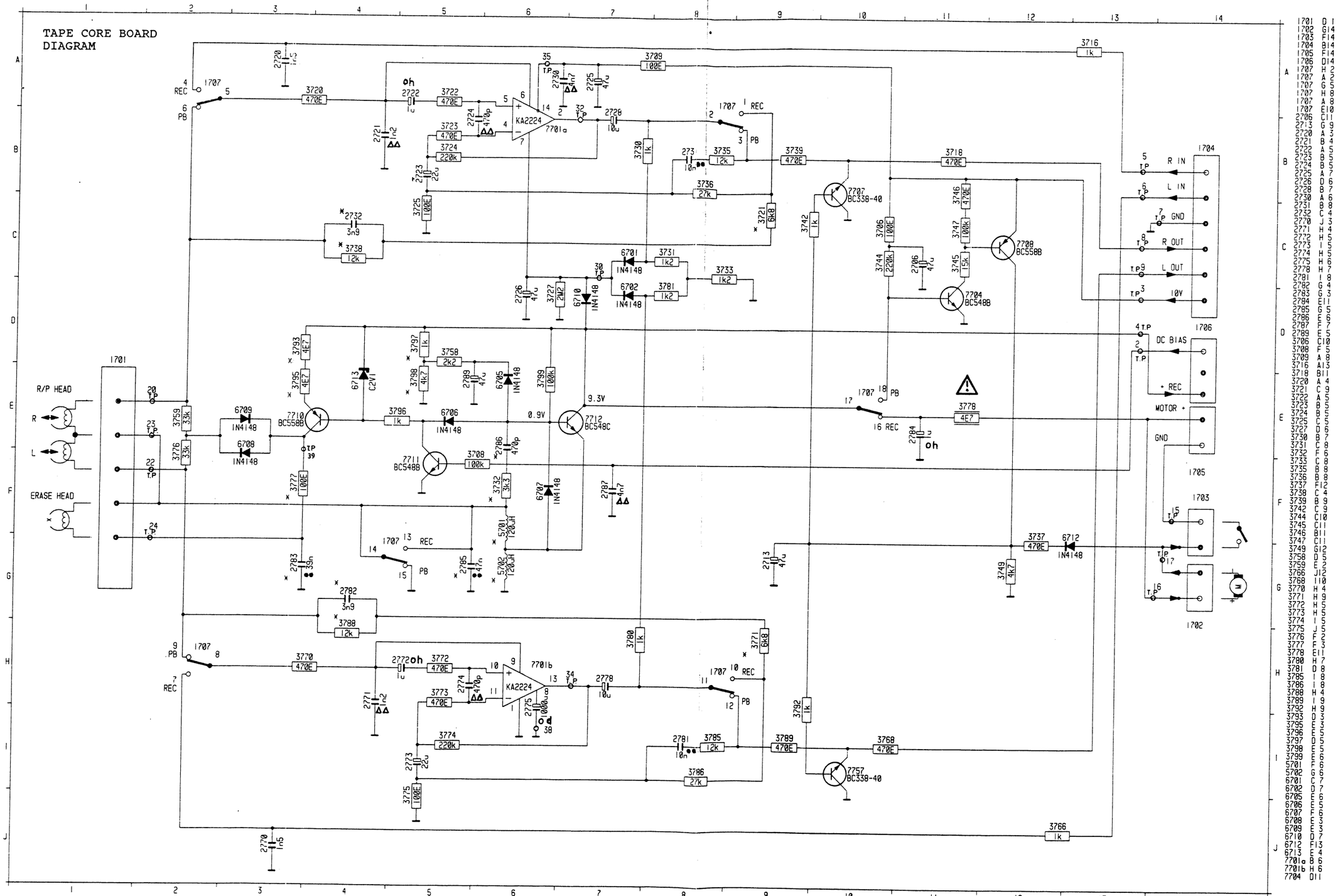
FOR AZ81XX & AZ82XX ONLY

TO RECHARGEABLE CONTACT

NOTES
UNLESS SPECIFIED — ARE CR25 RESISTOR

ITEM MARKED *	3300 - 3304
For other version	Shorted
For -17	As shown

TAPE CORE BOARD DIAGRAM



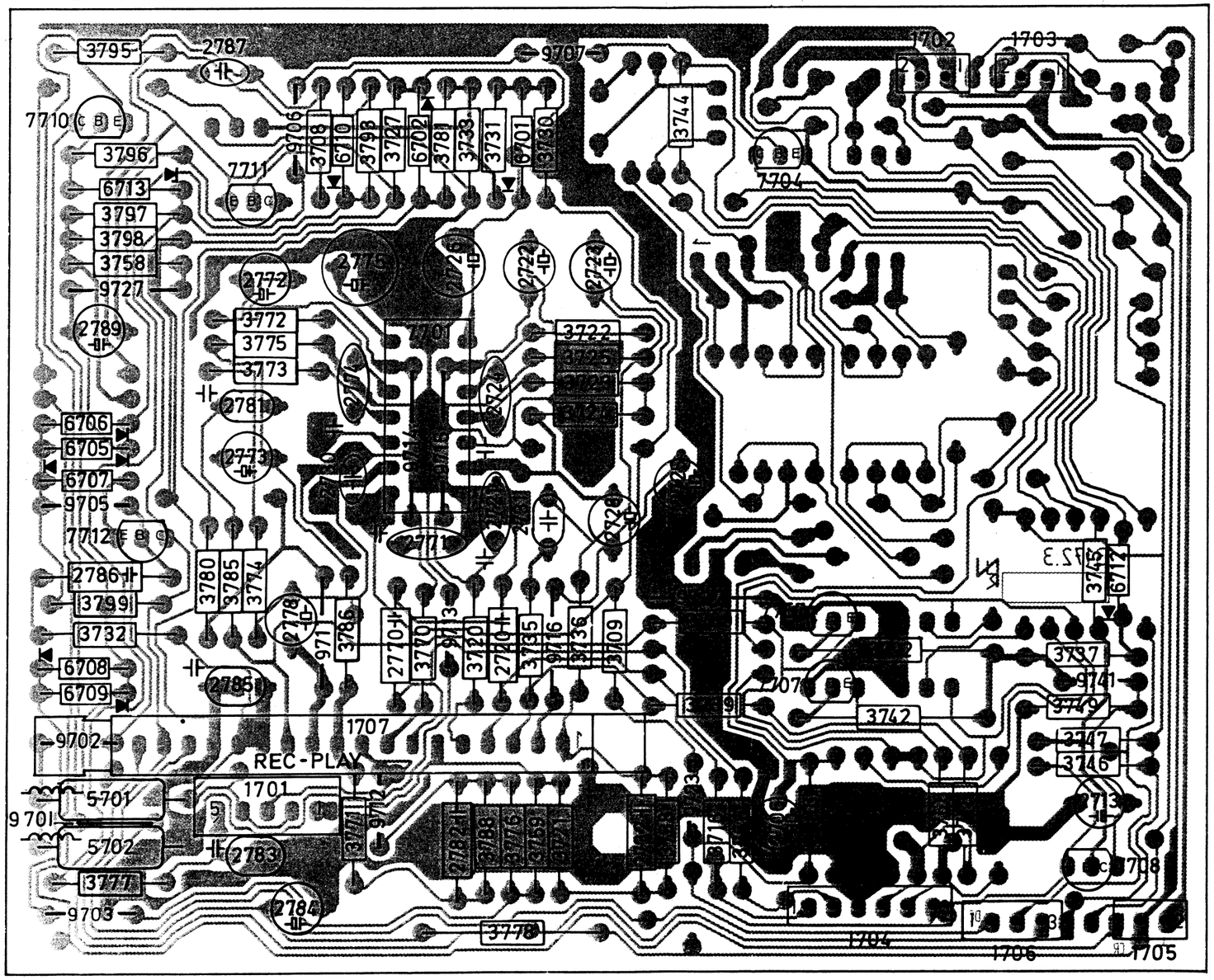
ITEM MARKED *	2783	2785	2786	2732,2782	3721,3771	3732	3738,3788	3777	3793	3795	3797	3798	5701,5702
3139 118 82730 (AZ8010)	33n	12n	220p	2n2	470E	10k	22k	150E	22E	8E2	3k9	2k2	820uH

NOTES

UNLESS SPECIFIED — ARE ELECTROLYTIC CAPACITORS 25V
— ARE TUBULAR CERAMIC CAPACITOR
— ARE CR25 RESISTOR

1701	D1	7707	B10
1702	G14	7708	C12
1703	F14	7710	E5
1704	B14	7711	F5
1705	F14	7712	E5
1706	D14	7757	I10
1707	H2		
1707	A2		
1707	G5		
1707	H8		
1707	A8		
1707	E10		
2706	C11		
2713	G9		
2720	A3		
2721	B4		
2722	A5		
2725	B5		
2724	B5		
2725	A7		
2726	D6		
2728	B7		
2730	A6		
2731	B8		
2732	C4		
2770	J3		
2771	H4		
2772	H5		
2773	I5		
2774	H5		
2775	H6		
2778	H7		
2781	I8		
2782	G3		
2783	G3		
2784	E11		
2785	G5		
2786	F7		
2789	E5		
3706	C10		
3708	F5		
3709	A8		
3716	A15		
3718	B11		
3720	A4		
3721	C9		
3722	A5		
3723	B5		
3724	B5		
3725	C6		
3727	D8		
3730	B7		
3731	C8		
3732	F8		
3733	C8		
3735	B8		
3736	B8		
3737	F2		
3738	C4		
3739	B9		
3742	C10		
3744	C11		
3745	C11		
3746	B11		
3747	C11		
3749	G12		
3758	D5		
3759	E2		
3766	J12		
3768	I10		
3770	H4		
3771	H9		
3772	H5		
3773	H5		
3774	I5		
3775	J5		
3776	F2		
3777	F3		
3778	E11		
3780	H7		
3781	D8		
3785	I8		
3786	I8		
3788	H4		
3789	I9		
3792	H9		
3793	D3		
3795	E3		
3796	E5		
3797	D5		
3798	E5		
3799	E6		
5701	F6		
5702	G6		
6701	C7		
6702	D7		
6705	E6		
6706	E5		
6707	F6		
6708	E3		
6709	E3		
6710	D7		
6712	F13		
6713	E4		
7701a	B6		
7701b	H6		
7704	D11		

TAPE UNIT BOARD / COMPONENT VIEW /AZ8214.00



1701	H3	3758	D2
1702	B9	3759	H5
1703	B9	3766	H7
1704	J8	3768	H9
1705	J10	3770	G4
1706	J9	3771	J4
1707	G4	3772	D3
2706	H7	3773	E3
2713	H10	3774	F3
2720	G5	3775	D3
2721	F5	3776	H5
2722	D5	3777	J2
2723	D6	3778	J5
2724	E5	3780	F3
2725	F7	3781	C5
2726	D5	3785	F3
2728	F6	3786	G4
2730	E4	3788	H5
2731	F5	3789	G7
2732	H6	3792	G8
2770	G4	3793	C4
2771	F4	3795	B2
2772	D3	3796	C2
2773	E3	3797	C2
2774	E4	3798	C2
2775	D4	3799	F2
2778	G3	5701	H2
2781	E3	5702	H2
2782	H5	6701	C5
2783	H3	6702	C4
2784	J3	6705	E2
2785	G3	6706	E2
2786	F2	6707	E2
2787	B3	6708	G2
2789	D2	6709	G2
3706	H8	6710	C4
3708	C4	6712	F10
3709	G6	6713	C2
3716	H7	7701	D4
3718	H9	7704	C7
3720	G5	7707	G7
3721	H6	7708	J10
3722	D6	7710	C1
3723	E6	7711	C3
3724	E6	7712	F2
3725	D6	7757	G7
3727	C4	9701	H1
3730	C5	9702	H2
3731	C5	9703	J2
3732	G2	9705	F2
3733	C5	9706	C3
3735	G5	9707	B6
3736	G6	9711	G4
3737	G10	9712	J4
3738	H6	9713	G5
3739	G7	9714	E4
3742	G8	9715	E5
3744	C7	9716	G6
3745	F10	9722	F7
3746	H10	9723	H7
3747	H10	9727	D2
3749	G10	9741	G10

MOTOR + : 10.0V

+ REC : 9.7V

7701

1 : 0V
2 : 4.1V
3 : -
4 : 4.0V
5 : 4.0V
6 : 0V
7 : 0.8V
8 : 4.0V
9 : 0V
10 : 4.0V
11 : 4.0V
12 : -
13 : 4.1V
14 : 8.1V

7704

e : 0V
b : 0.6V
C : 0V

7708

e : 8.6V
b : 7.8V
C : 8.4V

7710

e : 9.7V
: 8.7V
b : 10.7V
: 7.9V
c : 0V
: 8.6V

7712

e : 0.1V
: 0.2V
b : 0.3V
: 0.7V
c : 9.7V
: 9.7V

7711

e : 0V
: 0V
b : 0.2V
: 0.7V
c : 10.7V
: 0.2V

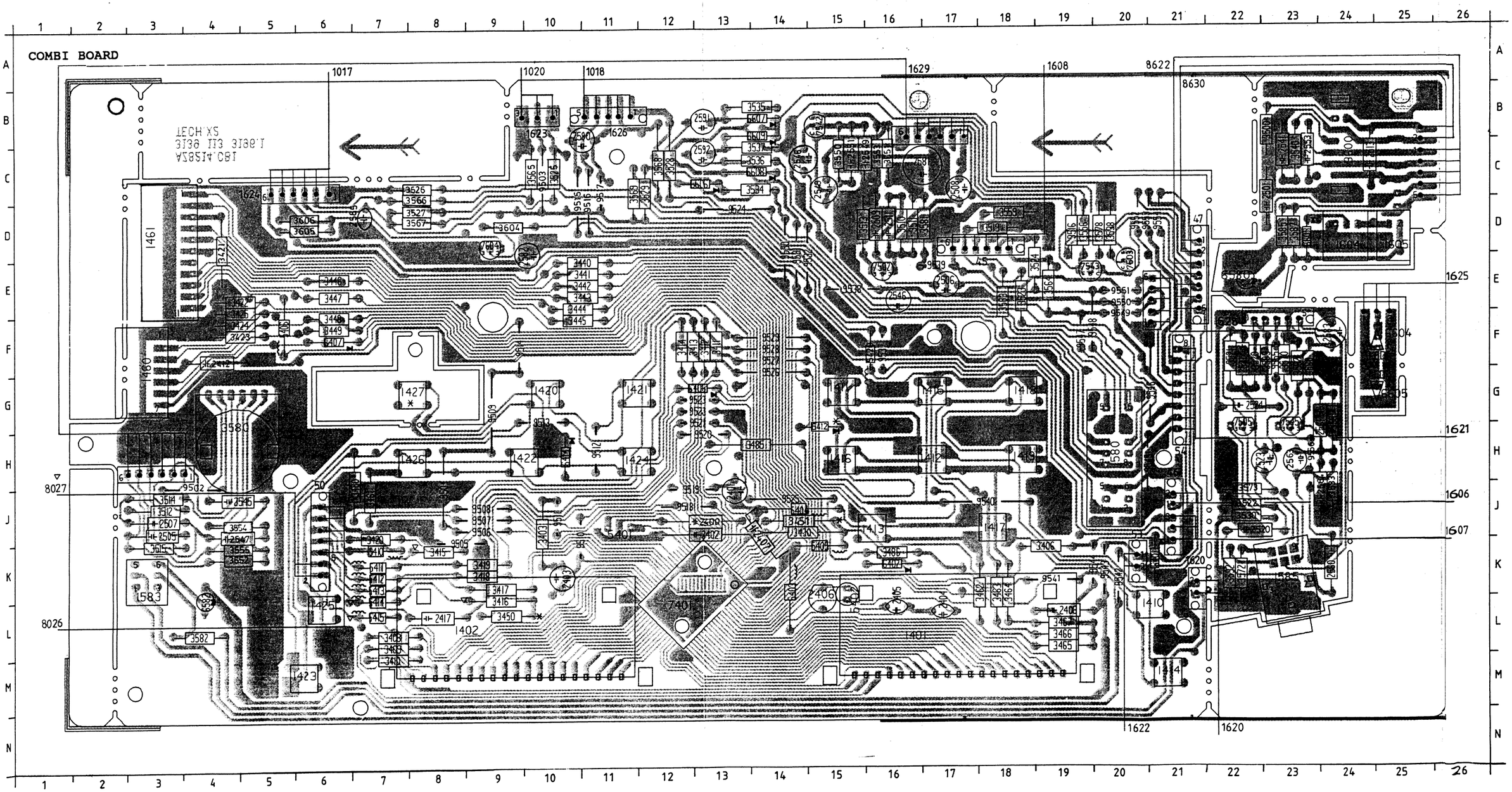
....V measured in FM recording position
____V measured in AM recording position

ADJUSTMENT	CASSETTE	SK...	TAPE DECK POSITION	MEASURE ON	READ ON	ADJUST WITH	ADJUST TO
Azimuth	10kHz SBC 420*	Cass.	Play fwd	1303	mV-meter	Left hand Screw R/P Head	Max. L = R
		Cass.	Play rev	1303	mV-meter	Right hand Screw R/P Head	
Motor speed	3150Hz SBC 420*	Cass.	Play fwd	1303	Wow and Flutter meter	preset in motor	** a
		Cass.	Play rev	1303	Wow and Flutter meter	-	

* SBC 420 : 4822 397 30071

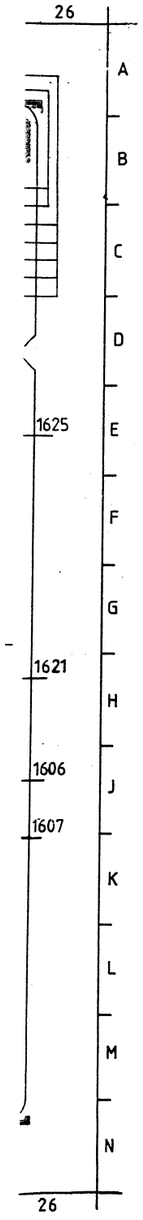
** a The maximum permissible speed deviation is 2%.
Moreover, the wow and flutter value can be read.
This value should not exceed 0.35%.

0045	E18	1412	H17	1426	G8	1621	H26	2406	K15	2521	F22	2564	H23	3411	F13	3425	E4	3451	J14	3513	D16	3529	C12	3554	J4	3570	F23	5402	K15	6406	G13	7401	L12	9504	H8	9518	J12	9532	D14	9551	E20
0046	H21	1413	J16	1427	G8	1622	N20	2407	J14	2523	H22	2580	B11	3412	F13	3430	J14	3461	J7	3514	J3	3530	J22	3555	J4	3572	K22	5403	K14	6407	F6	7502	E16	9505	J8	9519	J12	9538	E15	9552	D20
0047	D21	1414	M21	1460	F3	1623	C6	2408	L19	2524	G22	2580	B11	3413	F12	3440	E10	3462	K18	3515	J3	3532	K22	3556	D19	3573	J22	5404	J14	6412	G15	7503	E20	9506	J9	9520	H13	9539	E17	9553	D20
0048	B25	1415	G17	1461	D3	1624	C9	2414	F4	2541	C23	2581	A16	3414	F12	3441	E10	3463	K18	3516	D19	3533	H23	3559	D18	3578	D20	5405	K15	6414	H10	7505	G22	9507	J9	9521	G13	9540	J18	9554	D21
0050	H6	1416	H15	1580	H20	1625	E26	2417	L8	2545	J4	2582	D9	3415	K8	3442	E10	3464	K18	3519	D18	3534	C14	3560	F23	3581	D16	5406	F5	6537	F16	7542	C15	9508	J9	9522	G13	9541	K19	9555	F23
0053	J20	1417	J18	1583	K3	1626	B11	2501	C23	2546	E16	2583	F24	3416	L9	3443	E10	3465	L19	3520	F22	3535	B14	3561	G24	3582	L4	5410	K7	6580	E22	7543	E19	9509	G9	9523	G13	9542	K20	9556	H23
0054	H21	1418	G18	1585	K23	1628	F22	2505	J3	2547	J4	2585	D7	3417	K9	3444	E10	3466	L19	3521	F22	3536	C14	3562	F23	3583	F23	5411	K7	6582	L4	7545	G23	9510	J10	9524	D13	9543	K20	9615	C10
1017	A7	1419	H18	1604	D24	1629	A16	2506	E17	2548	C15	2591	B13	3418	K9	3445	F10	3467	L19	3522	J22	3537	C14	3563	E18	3585	D23	5412	K7	6603	D23	7604	D9	9511	J10	9525	J14	9544	K19	9616	C10
1018	A11	1420	G10	1605	D25	2400	J13	2507	J3	2549	C15	2592	C13	3419	K9	3446	E6	3485	H14	3523	E18	3538	D20	3564	E19	3587	D23	5413	K7	6604	F25	8026	L1	9512	H11	9526	F14	9545	H21		
1020	A10	1421	G11	1606	J26	2401	J13	2508	C17	2551	C15	3403	J10	3420	J7	3447	E6	3486	K16	3524	E18	3540	C23	3565	D4	3600	C24	5414	L7	6605	G25	8027	H1	9513	G10	9527	F14	9546	G21		
1401	L16	1422	H9	1607	J26	2402	J13	2509	D16	2553	C23	3406	K19	3421	E3	3448	E6	3500	B23	3525	D6	3550	C15	3566	C9	3604	D9	5415	L7	6606	C13	8622	A21	9514	F9	9528	F14	9547	F19		
1402	L8	1423	M6	1608	A19	2403	K10	2511	D16	2560	K24	3408	L7	3422	E4	3449	F6	3510	D16	3526	C10	3551	A16	3567	C10	3605	D8	5420	F16	6607	B14	8630	A21	9515	D10	9529	F14	9548	F19		
1410	L21	1424	H11	1620	N22	2404	L17	2513	C24	2561	G24	3409	L7	3423	F4	3450	J7	3511	D16	3527	C10	3552	K4	3568	C12	3606	D8	6401	K21	6608	C14	9502	D8	9516	D11	9530	D14	9549	F20		
1411	G15	1425	L6	1620	K21	2405	L16	2520	J22	2563	J24	3410	L7	3424	F4	3450	L9	3512	J3	3528	C12	3553	A16	3569	B11	5401	J11	6402	K16	6609	B14	9503	D8	9517	B11	9531	D14	9550	F20		



NOTE:
ITEMS MARKED * FOR -/17 ONLY
ITEMS MARKED ▽ FOR -/00 ONLY

51	E20
52	D20
53	D20
54	D21
55	F23
56	H23
15	C10
16	C10



VBuff : 4.7V

+CD : 9.2V

+REC : 9.7V

+RADIO : 9.3V

+5 : 5.4V

+9 : 8.6V

+10 : 10.0V

7502	7505
e : 0.7V	e : 0.2V
b : 1.3V	b : 0.8V
C : 3.3V	C : 5.6V

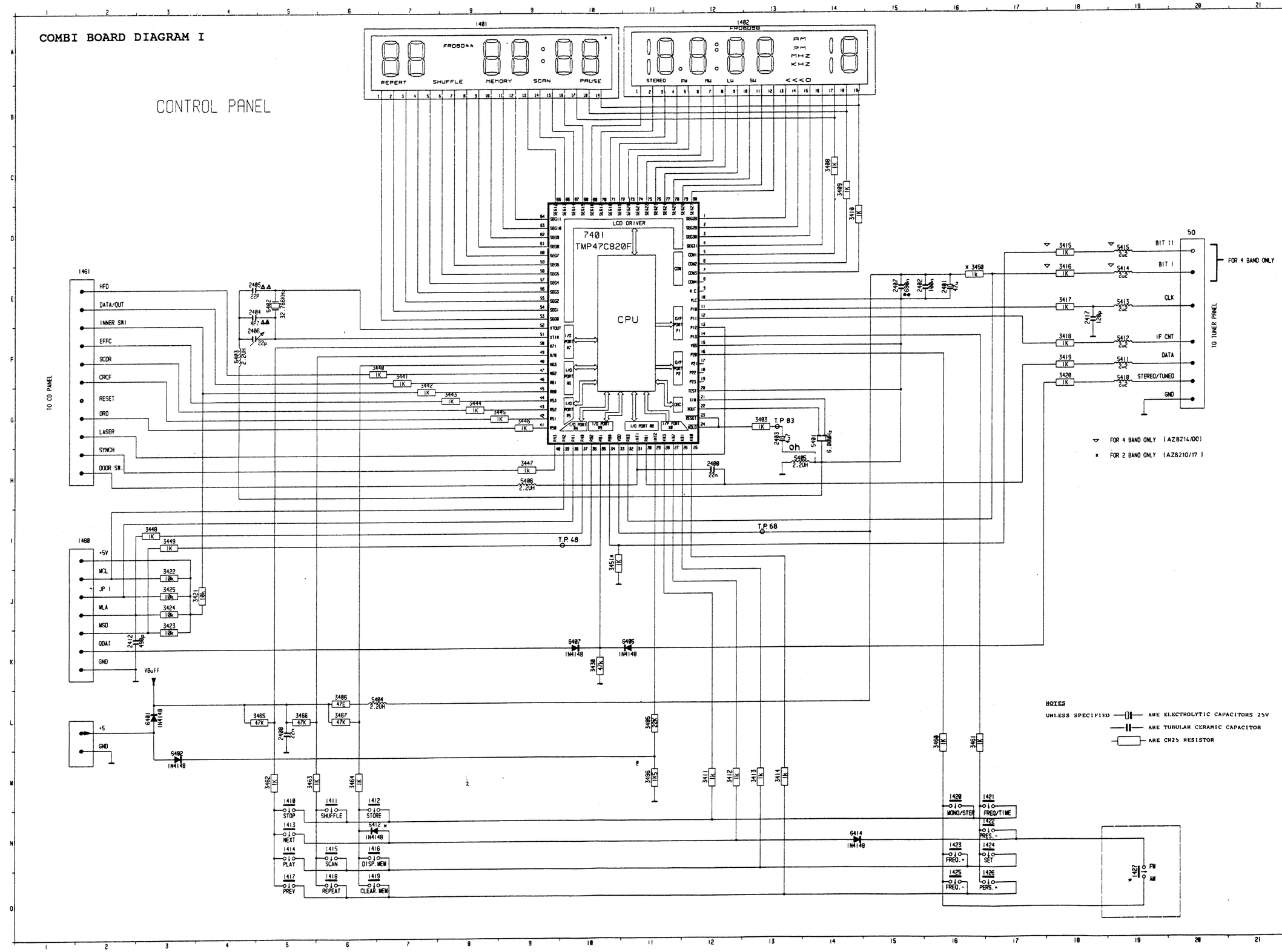
7542	7545
e : 0.7V	e : 0.2V
b : 1.3V	b : 0.8V
c : 3.3V	c : 5.6V

....V measured in tape on position

V measured in tape recording position

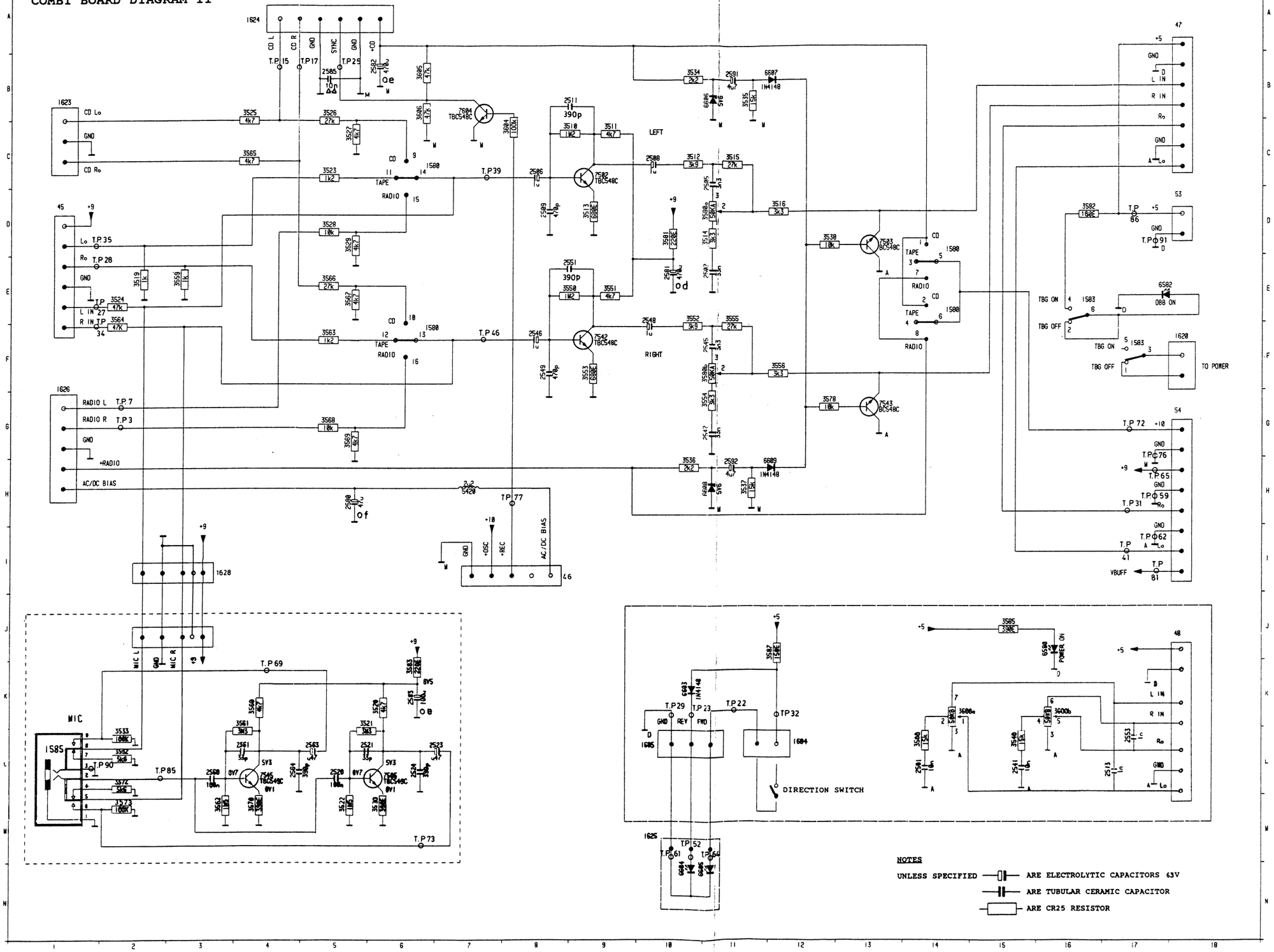
COMBI BOARD DIAGRAM I

CONTROL PANEL



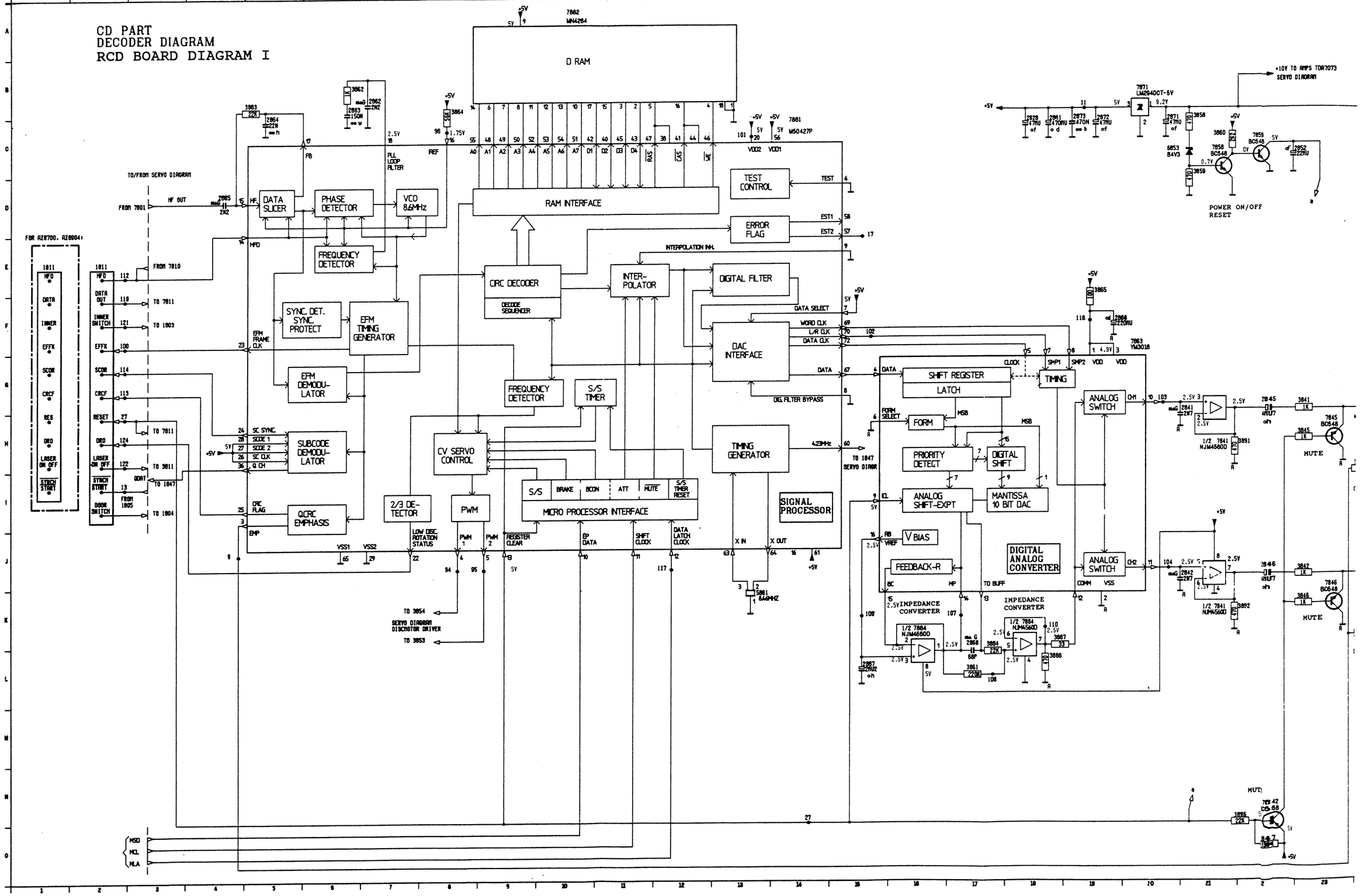
CS 34 076

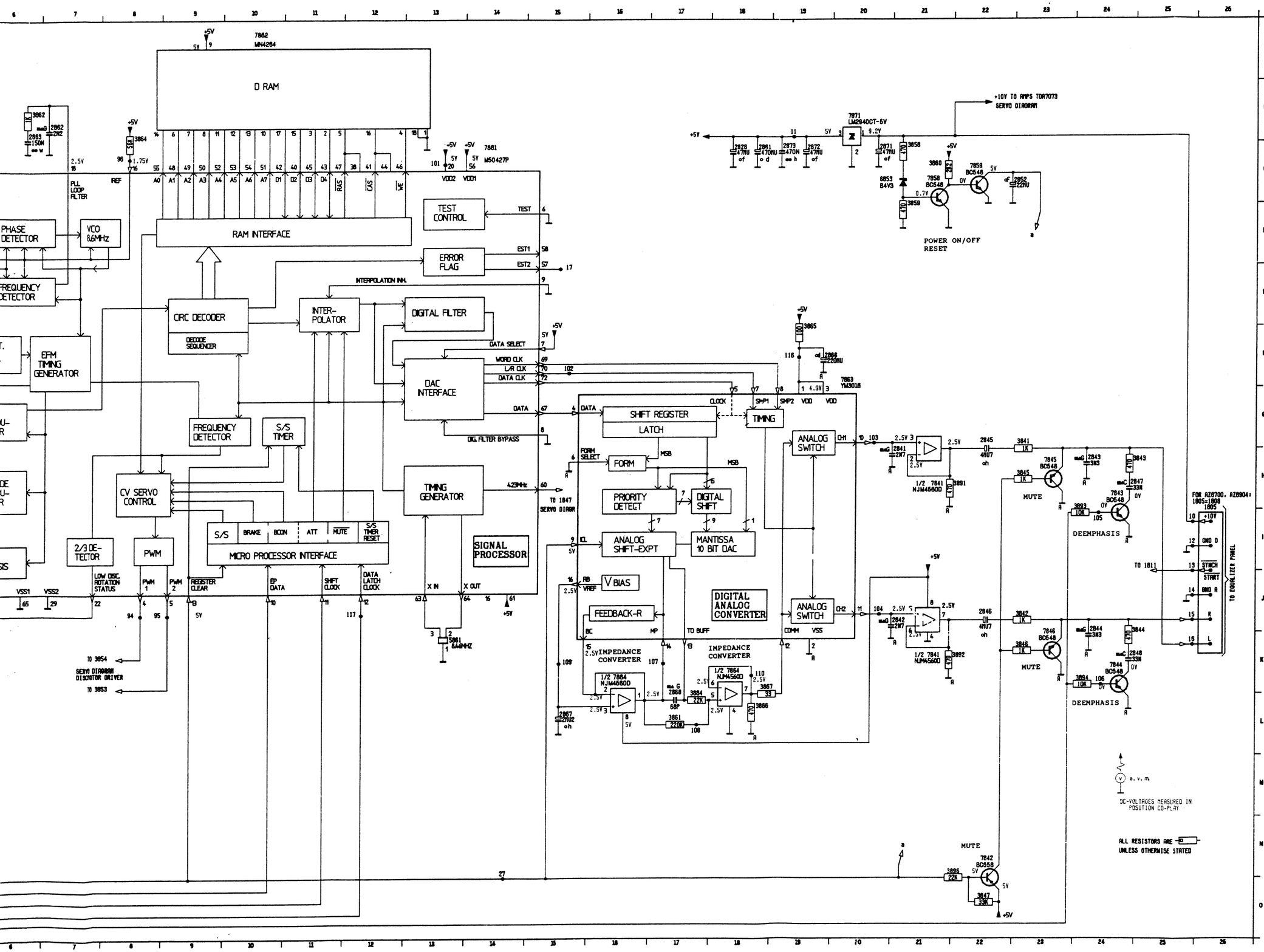
COMBI BOARD DIAGRAM II



0045 D1
0046 I8
0047 A18
0048 J18
0053 D18
0054 G18
1580 C6
1580 F6
1580 E14
1580 D14
1582 F17
1583 E16
1585 L1
1604 L12
1605 F10
1620 F18
1623 B1
1624 A4
1625 M10
1626 F1
1628 I3
2501 L14
2505 C11
2506 C8
2507 E11
2508 C10
2509 D8
2511 B8
2513 L17
2520 L5
2521 L5
2523 L7
2524 I6
2541 L15
2545 F11
2546 F8
2547 G11
2548 E10
2549 F8
2551 E8
2553 L17
2560 L3
2561 L4
2563 L5
2564 L4
2580 H5
2581 E10
2582 B6
2583 K6
2585 B5
2591 B11
2592 H11
3500 L14
3510 C8
3511 C9
3512 C10
3513 D9
3514 D11
3515 C11
3516 D12
3519 E2
3520 K6
3521 K5
3522 M5
3523 C5
3524 E2
3525 B4
3526 K5
3527 C5
3528 D5
3529 D5
3530 M6
3532 L2
3533 L2
3534 B10
3535 B11
3536 H10
3537 H11
3538 D12
3540 L15
3550 E8
3551 E9
3552 E10
3553 F9
3554 G11
3555 F12
3556 E12
3559 E3
3560 K4
3561 K4
3562 M3
3563 F5
3564 E2
3565 C4
3566 E5
3567 E5
3568 G5
3569 G5
3570 M4
3572 L2
3573 M2
3578 G12
3580a D11
3580b F11
3581 D10
3582 D16
3583 K6
3585 J15
3587 J12
3600a K14
3600b K16
3604 C8
3605 B6
3606 B6
5420 H7
6580 J16
6582 E17
6603 K10
6604 N10
6605 N11
6606 B11
6607 B12
6608 H11
6609 H12
7502 C9
7503 D13
7505 L6
7542 F9
7543 G13
7545 L4
7604 B7

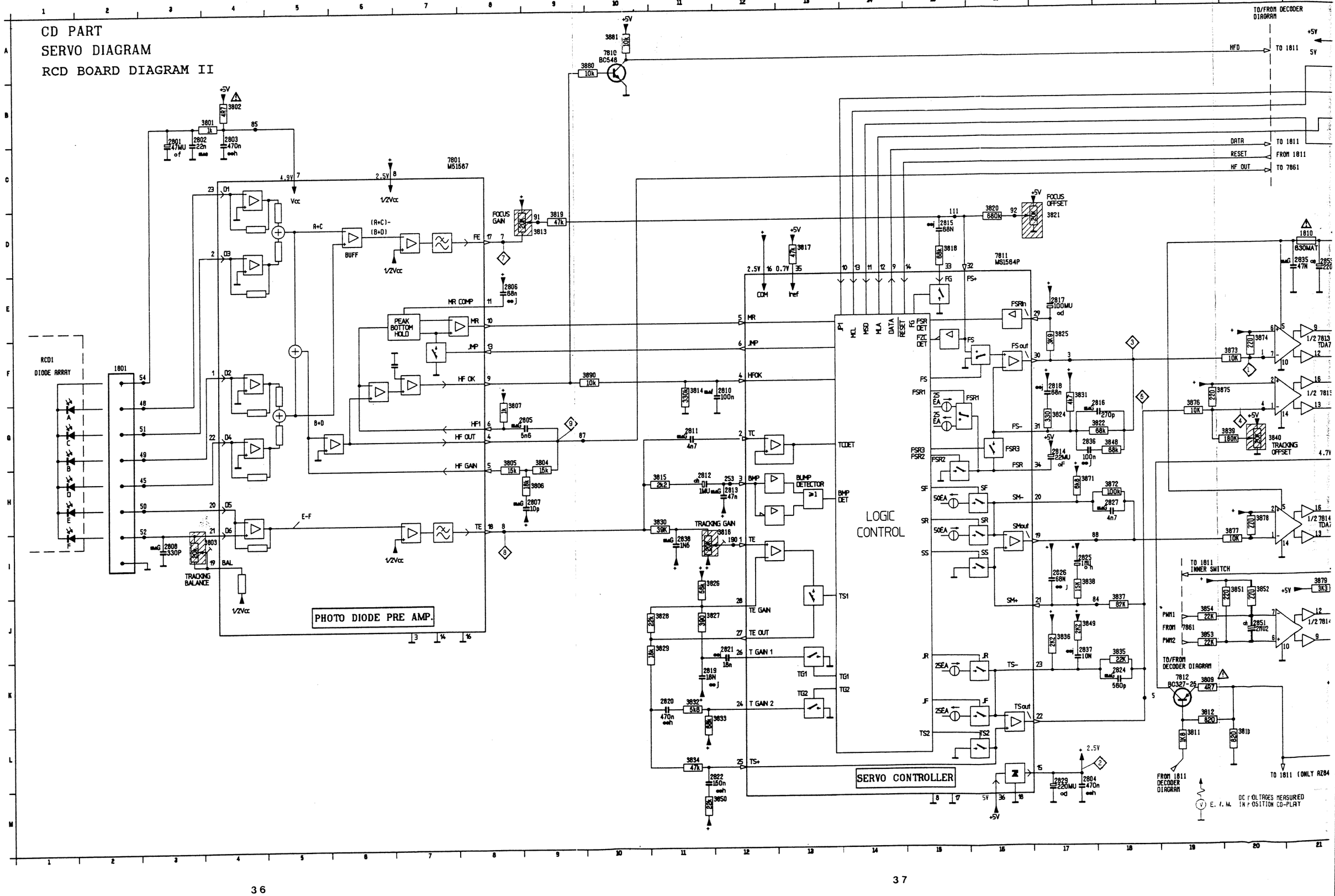
CD PART
DECODER DIAGRAM
RCD BOARD DIAGRAM I





	1805	H26
	1811	E 1
	1811	E 2
	2828	C18
A	2841	H20
	2842	J20
	2843	H24
	2844	J24
	2845	G22
	2846	J22
	2847	H24
B	2848	K24
	2852	C22
	2861	C16
	2862	B 7
	2863	B 6
	2864	C 5
	2865	D 4
	2866	F19
	2867	L15
C	2868	K17
	2871	C20
	2872	C19
	2873	C19
	3841	G23
	3842	J23
	3843	H24
	3844	J24
D	3845	H23
	3846	K23
	3847	G22
	3858	C21
	3859	D21
	3860	C21
	3861	L17
	3862	B 6
E	3863	B 5
	3864	B 8
	3865	F19
	3866	L18
	3867	K18
	3884	K17
	3891	H21
	3892	K21
F	3893	H24
	3894	K24
	3896	K22
	5861	K19
	6853	C20
	7841	H21
	7842	K22
	7843	H24
G	7844	K24
	7845	H23
	7846	J23
	7858	C21
	7859	C22
	7861	C14
	7862	A10
	7863	F20
	7864	K16
H	7871	B20

CD PART
SERVO DIAGRAM
RCD BOARD DIAGRAM II



CS 34079

7841

1 : 2.5V
2 : 2.5V
3 : 2.5V
4 : 0V
5 : 2.5V
6 : 2.5V
7 : 2.5V
8 : 5V

7864

1 : 2.5V
2 : 2.5V
3 : 2.5V
4 : 0V
5 : 2.5V
6 : 2.5V
7 : 2.5V
8 : 5V

7871

1 : 9.2V
2 : 0V
3 : 5V

....V
measured in CD
play position

CD part					
TRACKING OFFSET					
Stop			3840		◇6 ↔ ◇10 0 V ± 10 mV
TRACKING BALANCE					
Service test progr.* pos. 3 display 3--,--			3803	◇8 ↔ ◇2 Adjust to 0 V DC offset	
TRACKING GAIN					
Play with test disc 5	1200 Hz 200 mV	see Fig. 1	3816		See Fig. 1 CHX = 0,2 V/DIV CHY = 50 mV/DIV Adjust to circle
FOCUS GAIN					
Play with any normal disc	1100 Hz 700 mV	see Fig. 2	3813		See Fig. 2 CHX = 0,5 V/DIV CHY = 5 mV/DIV Adjust to circle
FOCUS OFFSET					
Play with any normal disc			3821		◇9 Max HF
			Check only	◇7 ↔ ◇2 U DC measured =Ux	
			3821	◇7 ↔ ◇2 Adjust to $\frac{Ux}{2}$	

* How to get in Service test programme see Service test programme

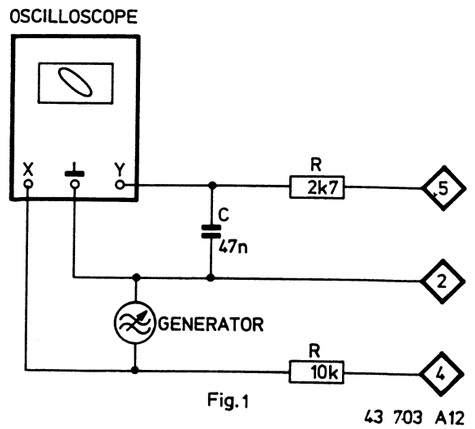


Fig.1

43 703 A12

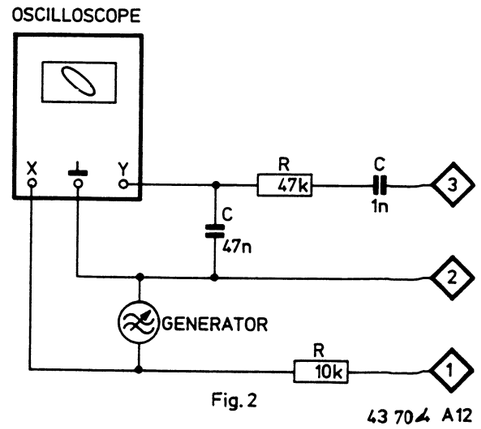
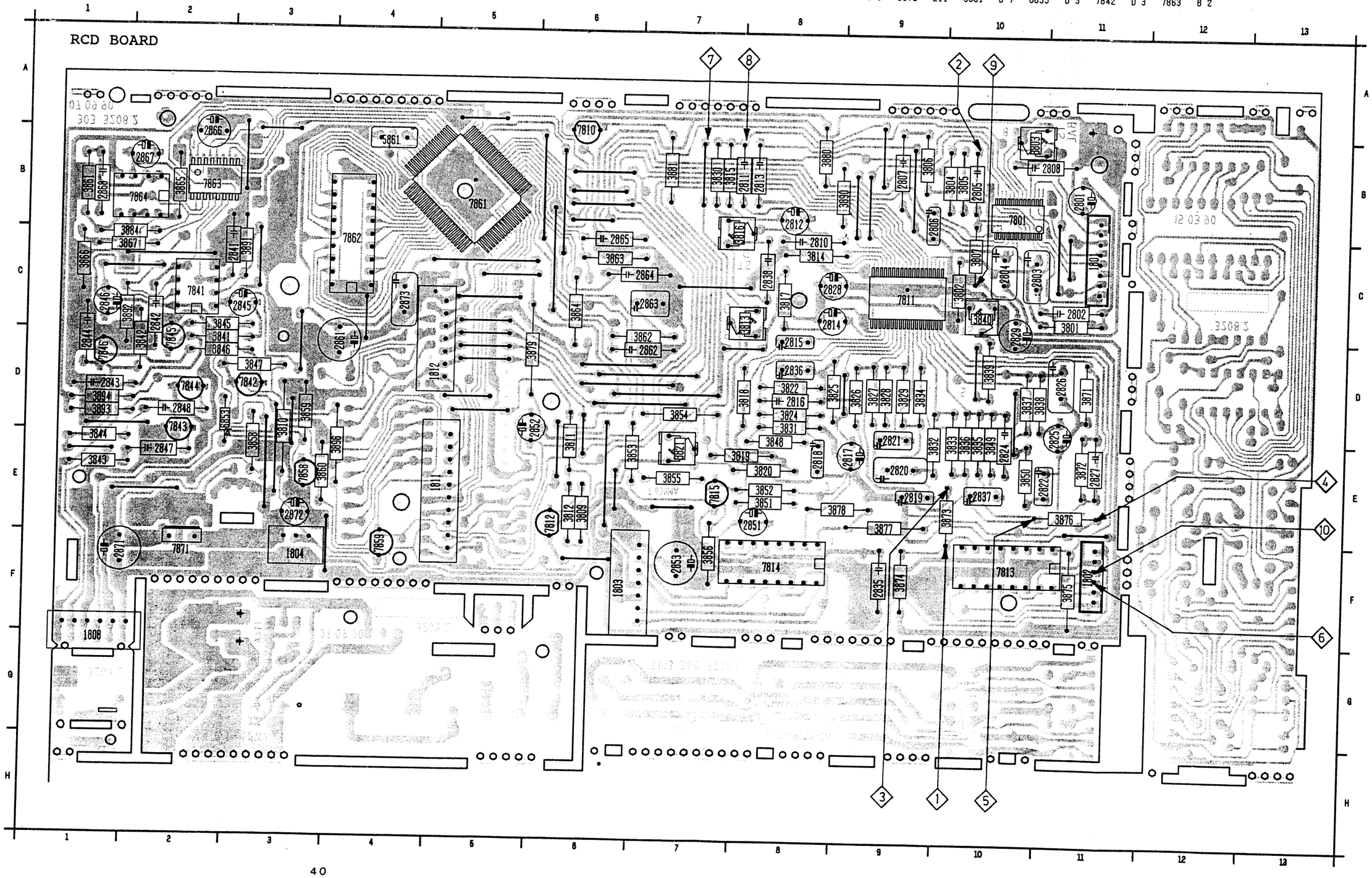


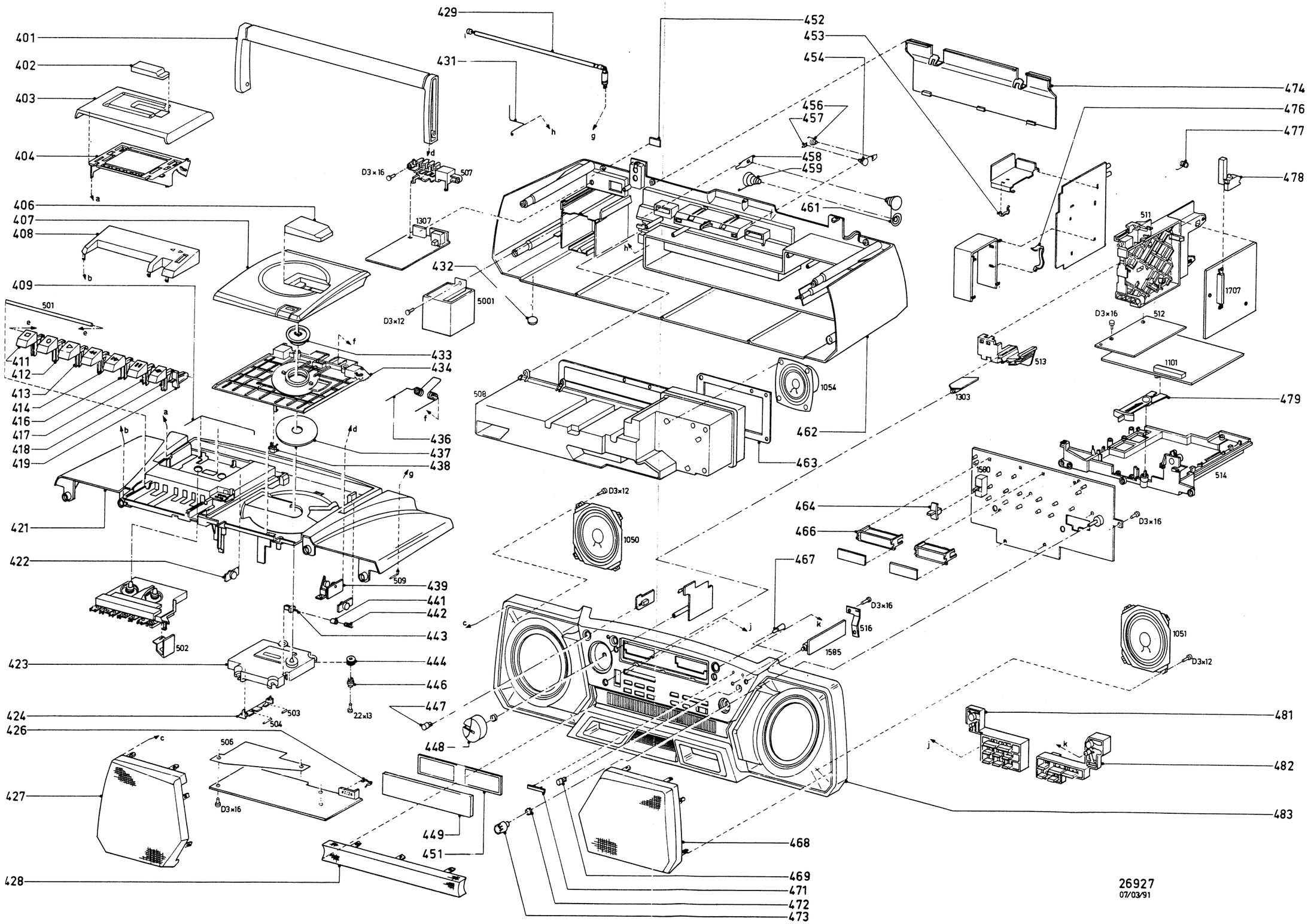
Fig. 2

43 704 A12

1801	C11	2803	C10	2813	B 8	2822	E11	2837	E10	2848	D 2	2866	B 2	3804	B10	3814	C 8	3824	D 8	3833	E10	3842	D 2	3851	E 8	3861	B 1	3873	E10	3884	C 1	7801	B10	7843	E 2	7864	B 2
1802	F11	2804	C10	2814	C 8	2824	E10	2838	C 8	2851	E 8	2867	B 2	3805	B10	3815	B 7	3825	D 8	3834	D 9	3843	E 1	3852	E 8	3862	D 7	3874	F 9	3890	B 9	7810	B 6	7844	D 2	7871	F 2
1803	F 6	2805	B10	2815	D 8	2825	D11	2841	C 3	2852	D 6	2868	B 1	3806	B 9	3816	B 8	3826	D 9	3835	E10	3844	E 1	3853	E 7	3863	C 6	3875	F11	3891	C 3	7811	C 9	7845	D 2		
1804	F 3	2806	B 9	2816	D 8	2826	D11	2842	C 2	2853	F 7	2871	F 1	3807	C10	3817	C 8	3827	D 9	3836	E10	3845	D 2	3854	D 7	3864	C 6	3876	E11	3892	C 2	7812	E 6	7846	D 1		
1808	G 1	2807	B 9	2817	E 9	2827	E11	2843	D 1	2861	D 4	2872	E 3	3809	E 6	3818	D 8	3828	D 9	3837	D10	3846	D 2	3855	E 7	3865	B 2	3877	E 9	3893	D 1	7813	F10	7858	E 3		
1811	E 5	2808	B11	2818	E 8	2828	C 8	2844	D 1	2862	D 7	2873	C 4	3810	D 3	3819	E 8	3829	D 9	3838	D11	3847	D 3	3856	F 7	3866	C 1	3878	E 9	3894	D 1	7814	F 8	7859	F 4		
1812	D 5	2810	C 8	2819	E 9	2829	C10	2845	C 3	2863	C 7	3801	C11	3811	E 6	3820	E 8	3830	B 7	3839	D10	3848	E 8	3858	E 3	3867	C 1	3879	D 6	3896	E 4	7815	E 7	7861	B 5		
2801	B11	2811	B 8	2820	E 9	2835	F 9	2846	C 1	2864	C 7	3802	C10	3812	E 6	3821	E 7	3831	D 8	3840	C10	3849	E10	3859	D 3	3871	D11	3880	B 8	5861	B 4	7841	C 2	7862	C 4		
2802	C11	2812	B 8	2821	E 9	2836	D 8	2847	E 2	2865	C 6	3803	B10	3813	C 8	3822	D 8	3832	E 9	3841	D 2	3850	E10	3860	E 3	3872	E11	3881	B 7	6853	D 3	7842	D 3	7863	B 2		

RCD BOARD


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H
7 8 2 9
4 10 6 3 1 5
2866 2867 7863 7864 3865 3861 2868 3884 3867 3866 2841 3889 7841 2846 3892 2842 7845 3845 3841 3846 3847 2843 3894 3893 2848 7844 7843 3844 2847 3843 7842 3853 3858 3859 3810 3860 3696 7858 2872 2871 7871 1804 1806
5861 7861 7862 2873 2861 1812 3879 7859 1811 2852 3811 3653 3812 3809 7812 1803 2853 3856 7814 3854 3855 7815 3852 3851 2851 3878 3877 3874 2835 3822 3816 3824 3831 3848 3819 3820 2818 2817 2821 2820 2819 2837 3876 3875 1802 7813
7810 3881 3880 3830 3815 2811 2813 2812 3817 2810 3814 2838 3813 2828 2814 7811 3802 3807 3840 2815 2836 3818 3825 3826 3827 3828 3829 3834 3632 3633 3835 3836 3849 2824 3639 3837 3838 2826 3871 2825 2822 3850 3872 2827
7801 2808 3803 3804 3805 2805 2806 2807 3806 2804 2803 2802 3801 1801 2801 3808 3829
2865 3863 2864 2863 3862 2862 3864 3617 3610 3611 3609 3612 3653 3621 3622 3627 3628 3629 3630 3631 3633 3634 3635 3636 3637 3638 3639 3640 3641 3642 3643 3644 3645 3646 3647 3648 3649 3650 3651 3652 3653 3654 3655 3656 3657 3658 3659 3660 3661 3662 3663 3664 3665 3666 3667 3668 3669 3670 3671 3672

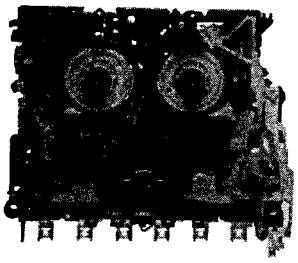


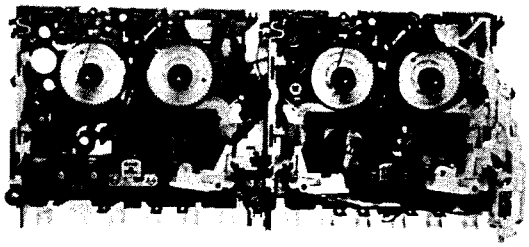
26927
07/03/91

4089

Tape transport RN/RR
RDN/RDR
General documentation

Service
Service
Service


44 993 A11


44 990 A11

Service Manual

(GB) MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Belts
- Capstan
- Pressure roller

(NL) ONDERHOUD

Aanbevolen wordt het apparaat na ca. 500 bedrijfsuren schoon te maken

Schoonmaken met alcohol of spiritus:

- Wiskop
- Opneem-/weergeefkop
- Snaren
- Toonas
- Drukrol

(F) ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Corroies
- Cabestan
- Galet presseur

(D) WARTUNG

Es empfiehlt sich, das Gerät nach ca. 500 Betriebsstunden zu reinigen

Reinigen mit Alkohol oder Spiritus:

- Löschkopf
- Aufnahme/Wiedergabe-Kopf
- Antriebsriemen
- Tonachse
- Andruckrolle

(I) MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Cinghie
- Capstan
- Rullo preminastro

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Serviço

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

Subject to modification
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Service Consumer Electronics

4089

Eloignez du cabestan le galet presseur avec un manomètre à ressorts (4822 395 80028)– Fig.2 Lisez la pression au moment où la bande cesse de défiler. Cette pression ne peut pas être réglée !

- **Griffe enrouleuse 402**
  Le moment de torsion peut être mesuré à l'aide de la cassette de test à friction 4822 395 30054 en mode lecture.
  Condition requise :
  Moment de torsion de l'enrouleuse : 40–65 MIC
  Variation autorisée : 5 MIC
  Bobine débitrice : 2 – 4 MIC

- **Moment de torsion FF/REW (bobinage rapide/rebobinage)**
  Utilisez la cassette de test à friction 4822 395 30054
  Mode bobinage rapide ou rebobinage.
  Arrêtez la bobine débitrice à la main et lisez la force de friction: 55 – 90 MIC exigés

- Contrôle du **défilement de bande et du réglage du cabestan** :
  Utilisez la cassette à miroir 4822 395 30058 en mode lecture Si la bande se déplace vers le haut ou vers le bas du cabestan, vous devez ajuster le cabestan perpendiculairement avec le palier 5 du volant.
  La bande doit défiler en ligne droite et doucement entre les guides de bande. De faibles déviations de ce modèle sont autorisées car leur effet est négligeable avec une cassette conven– tionnelle.

  Attention :
  Dans le cas d'une platine cassette à inversion de défilement, il est très important de vérifier le défilement de bande dans les deux sens après le réglage de l'azimut de la tête de lecture/enregistrement.
  Répétez cette opération si nécessaire.

  Pour **le réglage de l'azimut** de la tête de lecture/enregistrement et **la vitesse de bande**, reportez–vous au manuel d'entretien correspondant.

(D) AUSBAU

- **Andruckrolle 40+41 (76+73) entfernen:**
  Sperrzunge der Kopfträgerplatte zur Seite drücken und Hebel 40 (73) hochziehen.

- **Aufwickelkupplung 402 entfernen:**
  Rasthaken auseinanderdrücken (z.B. mit spitzer Pinzette) und gleichzeitig 402 hochziehen.

- **Kopfträgerplatte**
  Kann nicht ausgebaut werden,da Druckfeder 39 nur mit einem Spezialwerkzeug montiert werden kann.

EINSTELLUNGEN und KONTROLLEN

- Kontrolle des **Anpreβrollendruckes**
  Der Druck der Anpreβrolle 41 (76) an die Tonachse soll 240 ± 30 p betragen.
  Meβmethode: Stellung "play" mit beliebiger Kassette.Anpreβrolle mit einer Federwaage (4822 395 80028) – Ansetzpunkt siehe Fig. 2 – von der Tonachse wegdrücken. Lesen Sie die Kraft in dem Moment ab,wenn der Bandtransport stoppt.
  Dieser Druck kann nicht eingestellt werden!

- **Aufwickelrutschkupplung 402**
  Das Aufwickelmoment wird mit der Meβkassette 4822 395 30054 in Stellung "play" gemessen.
  Anforderung:
  Aufwickelmoment: 40 – 65 pcm
  (zulässige Schwankung 5 pcm)
  Gegenzug: 2 – 4 pcm

- **FF / REW – Moment**
  Stellung "FF" bzw. "REW"
  Meβkassette 4822 395 30054 verwenden.
  Jeweiligen Abwickelteller mit der Hand blockieren und Moment ablesen.
  Anforderung: 50 – 90 pcm

- Kontrolle des **Bandlaufs** und der **Tonwelleneinstellung:**
  Verwenden Sie Spiegelkassette 4822 395 30058 in Stellung "play".
  Wenn sich das Band an der Tonwelle nach oben oder unten bewegt,muβ die Tonwelle mit dem Exzenterlager 5 senkrecht gestellt werden.
  Das Band soll gerade und genau fluchtend zwischen den Bandführungen der Köpfe und an der Tonwelle entlang laufen.Geringe Abweichungen in diesem Bild sind zulässig, da sie bei einer normalen Kassette nicht beeinträchtigend wirken.

  Achtung: Bei Reverse – Laufwerken ist es wichtig,nach Einstellung des Azimuths den Bandlauf in beiden Richtungen zu kontrollieren ------ falls notwendig, wiederholen.
  Für Einstellung des **Azimuths** des REC/Pb –Kopfes und der **Bandgeschwindigkeit** siehe Servicedokumentation des betreffenden Gerätes.

(I) CONSIGLI DI SERVIZIO ASSISTENZA

SMONTAGGIO

- **Smontaggio del rullino pressanastro 50+41 (76+73)**

  Spingere la linguetta di bloccaggio del supporto delle testine lateralmente e tirare in alto la leva 40 (73).

- **Smontaggio dell'accoppiamento di avvolgimento 402**

  Spingere le linguette di bloccaggio lateralmente (p.e. con una piccola pinza) e tirare in alto l'accoppiamento 402.

- **Supporto delle testine**

  Non è possibile smontare il supporto delle testine dato che lo smontaggio della molla di spinta 39 richiede un attrezzo speciale che non è disponibile in un'officina.

REGISTRAZIONI e CONTROLLI

- Controllo della **forza del rullino pressanastro** contro il rullino trainonastro:
  La forza del rullino pressanastro contro il rullino trainonastro deve essere di 240 ± 30 p.

  Metodo di misurazione:
  Inserire una qualsiasi cassetta e premere il tasto di riproduzione. Allontanare il rullino pressanastro con un misuratore della pressione elicoidale (4822 395 80028) dal rullino trainonastro (fig. 2).
  Leggere il valore proprio al momento che il nastro si arresta.
  Non è possibile correggere questa pressione!

- **Accoppiamento di avvolgimento 402**

  La coppia può essere misurata con l'aiuto della cassetta di controllo della frizione 4822 395 30054 nel modo di riproduzione.
  Valori prescritti:
  Coppia di avvolgimento: 40–65 pcm.
  (tolleranza: 5 pcm)
  Bobina di svolgimento : 2–4 pcm.

- **Coppia di avvolgimento/riavvolgimento**

  Servirsi della cassetta di controllo della frizione 4822 395 30054 nel modo di avvolgimento o riavvolgimento.
  Bloccare con la mano la rotazione della bobina di svolgimento e leggere la forza di frizione.
  Valore prescritto: 55–90 pcm.

SERVICE HINTS

(GB) DISMANTLING

- **Removal of the pressure roller 40+41 (76+73)**
  Press locklug of headsupport aside and pull up lever 40 (73).
- **Removal of take up clutch 402**
  Press locklugs apart (e.g.with a small pair of tweezers) and pull up 402.
- **Head support**
  Cannot be removed because suppression spring 39 has to be assembled with a special tool which is not available in the workshops.

ADJUSTMENTS and CHECKS

- Check of **pressure roller force** against capstan:
  The force of the pressure roller against the capstan should be 240 ± 30 p.
  Measuring method:
  Pb mode with arbitrary cassette. Push the pressure roller with a spring pressure gauge (4822 395 80028) away from the capstan – see fig.2
  Read force just in that moment when tape travel stops.
  This pressure cannot be adjusted!
- **Take up clutch 402**
  The torque can be measured with friction test cassette 4822 395 30054 in play mode.
  Requirement:
  take up torque: 40 – 65 pcm
  (permissible variation 5 pcm)
  supplying reel: 2 – 4 pcm
- **FF/REW torque**
  Use friction testcassette 4822 395 30054
  FF– or Rew – mode
  Stop supplying reel by hand and read friction force – requirement: 55 – 90 pcm
- Check of **tape travel and capstan adjustment:**
  Use mirror cassette 4822 395 30058 in play mode.
  If the tape moves up or down at the capstan the capstan has to be adjusted perpendicularly with the flywheel bearing 5.
  The tape should travel straight and smoothly between the tapeguides and along the capstan.Small deviations in this pattern are permissible since their effect is negligible with a normal cassette.

  Attention: In case of a reverse deck it is important to check tape travel in both directions after adjustment of the azimuth of the Rec./Pb – head ---- repeat if necessary.

  For **adjustment of the azimuth** of the Rec./Pb – head and the **tape speed** refer to the concerning service manual of the set.

(NL) SERVICE-HINTS

DEMONTAGE

- **Verwijderen van aandrukrol 40+41 (76+73)**
  Duw de vergrendellip van de kopsteun opzij en trek hefboom 40 (73) omhoog.
- **Verwijderen van opwikkelkoppeling 402**
  Duw de vergrendellippen opzij (bijvoorbeeld met een klein pincet) en trek de koppeling 402 omhoog.
- **Kopsteun**
  De kopsteun kan niet worden verwijderd omdat voor de montage van drukveer 39 een speciaal stuk gereedschap is vereist dat in een werkplaats niet voorhanden is.

AFSTELLINGEN en CONTROLES

- Controleren van de kracht **van de aandrukrol** tegen de kaapstander:
  De druk van de aandrukrol tegen de kaapstander moet zijn 240 ± 30p.
  Meetmethode:
  Plaats een willekeurige cassette en druk de weergavetoets in. Trek de aandrukrol met een veerdrukmeter (4822 395 80028) weg van de kaapstander – zie afbeelding 2.
  Lees de waarde af precies op het moment dat de band stopt.
  Deze druk kan niet worden bijgeregeld.
- **Opwikkelkoppeling 402**
  Het koppel kan worden gemeten met behulp van de frictietestcassette 4822 395 30054 in de weergavestand.
  Eis:
  opwikkelkoppel: 40 – 65 pcm
  (toegestane afwijking 5 pcm)
  afwikkelspoel: 2 – 4 pcm
- **koppel bij vooruit–/terugspoelen**
  Gebruik frictietestcassette 4822 395 30054 in de stand vooruitspoelen of terugspoelen.
  Houd de afwikkelspoel met de hand stil en lees de wrijvingskracht af – eis: 55 – 90 pcm.
- Controleren van **bandtransport en kaapstander–instelling:**
  Gebruik spiegelcassette 4822 395 30058 in de stand weergeven.
  Als de band bij de kaapstander op en neer gaat, moet de kaapstander verticaal worden bijgesteld met behulp van vliegwiellager 5.
  De band moet recht en soepel tussen de bandgeleiders langs de kaapstander lopen. Kleine afwijkingen in dit patroon zijn toelaatbaar omdat het effect ervan bij een normale cassette te verwaarlozen is.

  Aandacht: In geval van een deck dat zowel kan opnemen als weergeven, is het belangrijk om na de azimuthinstelling van de opname–/weergavekop het bandtransport in beide richtingen te controleren.
  Indien nodig de instelling herhalen.
  Voor **de azimuthinstelling** van de weergave–/opnamekop en de **bandsnelheid** gelieve u de servicehandleiding van het betreffende apparaat te raadplegen.

(F) CONSEILS D'ENTRETIEN

DEMONTAGE

Démontage du galet presseur 40+41 (76+73) Poussez sur le côté la patte de serrage du support de la tête de lecture et remontez le levier 40 (73).

Démontage de la griffe enrouleuse 402
Poussez à l'écart les pattes de serrage (par exemple avec des pincettes) et tirez la griffe 402 vers le haut.

Support de tête de lecture
Ne peut être retiré car le ressort de suppression 39 doit être monté au moyen d'un outil spécial non disponible dans les ateliers.

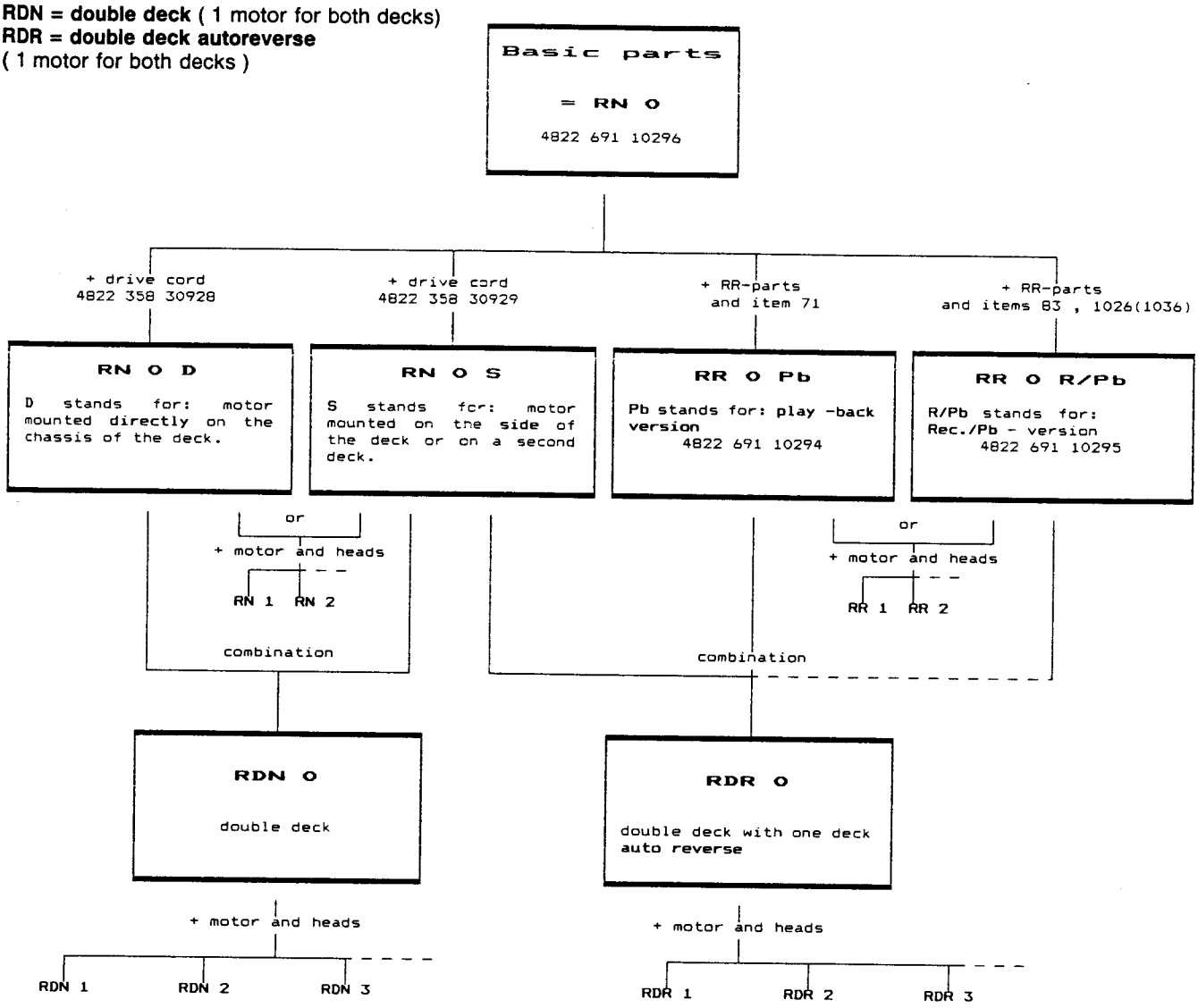
REGLAGES ET VERIFICATIONS

- Vérification de **la pression des galets presseurs** contre le cabestan :
  La pression exercée contre le cabestan doit être de 240 ± 30 p.
  Méthode de mesure :
  En mode lecture avec une cassette arbitraire.

RN / RR – system:

RN = single deck
RR = single deck autoreverse -

RDN = double deck (1 motor for both decks)
RDR = double deck autoreverse
(1 motor for both decks)



(GB)

Version 0 stands for deck without motor and heads.The various motors and heads give the various versions of tapetransports.
For codenumbers of motors and heads see separate manual of the corresponding tapetransport – version.

(NL)

Versie 0 staat voor een loopwerk zonder motor en magneetkoppen. Der vershillende motors en koppen bepalen der verschillende loopwerkversies.
De codenummers van de motors en koppen zijn vermeld in de documentatie van de betreffende loopwerkversie.

(F)

La version 0 correspond á une mécanique sans moteur ni têtes. Ce sont eu fait les differents moteurs et têtes qui sont de terminauts pour le n° que porte une ceztaine version d'une mécanique.
Veuillez vous reporter á la Documentation traitant d'un version précise en matiére de codes des mouteurs et des têtes.

(D)

Version 0 steht für : Laufwerk ohne Motor und Köpfe. Die verschiedenen Motoren und Köpfe bestimmen die verschiedenen Versionen der Laufwerke.
Die Codenummern der Motoren und Köpfe entnehmen Sie bitte der Dokumentation der betreffenden Version.

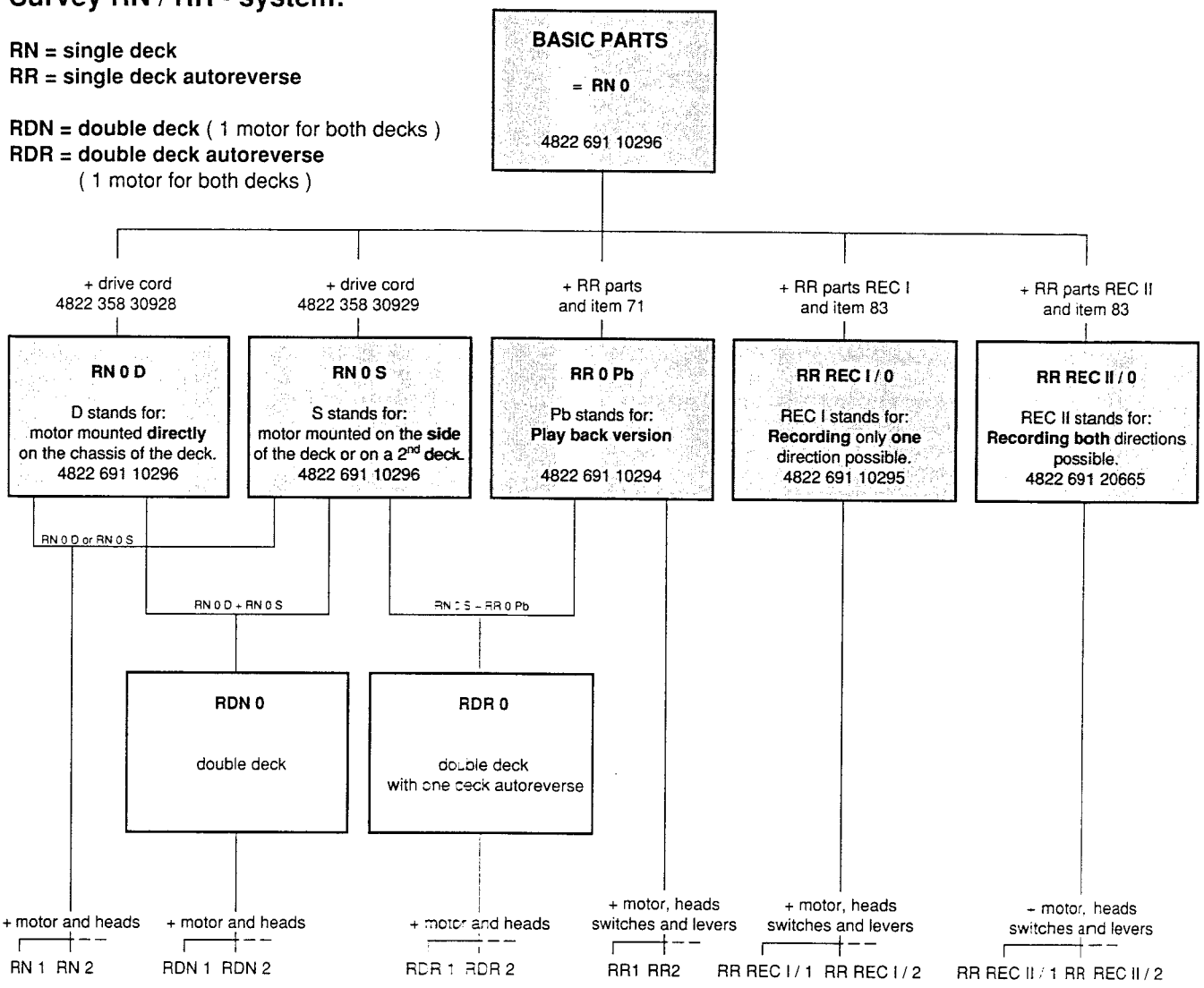
(I)

La versione 0 corrisponde ad un meccanismo privo di motore e testine. Infatti sono i motori e le testine che determinano il número di codice di una certa versione di un meccanismo.
Per quanto concerne i codici per motori e testine, riferirsi alla Documentazione de Servizio della versione precisa di cui si tratta.

Survey RN / RR - system:

RN = single deck
RR = single deck autoreverse

RDN = double deck (1 motor for both decks)
RDR = double deck autoreverse
(1 motor for both decks)


BASIC PARTS
= RN 0
4822 691 10296
+ drive cord 4822 358 30928
+ drive cord 4822 358 30929
+ RR parts and item 71
+ RR parts REC I and item 83
+ RR parts REC II and item 83
RN 0 D
D stands for: motor mounted directly on the chassis of the deck. 4822 691 10296
RN 0 S
S stands for: motor mounted on the side of the deck or on a 2nd deck. 4822 691 10296
RR 0 Pb
Pb stands for: Play back version
4822 691 10294
RR REC I / 0
REC I stands for: Recording only one direction possible. 4822 691 10295
RR REC II / 0
REC II stands for: Recording both directions possible. 4822 691 20665
RN 0 D or RN 0 S
RN 0 D + RN 0 S
RN 0 S - RR 0 Pb
RDN 0
double deck
RDR 0
double deck with one deck autoreverse
+ motor and heads
RN 1 RN 2
+ motor and heads
RDN 1 RDN 2
+ motor and heads
RDR 1 RDR 2
+ motor, heads switches and levers
RR1 RR2
+ motor, heads switches and levers
RR REC I / 1 RR REC I / 2
+ motor, heads switches and levers
RR REC II / 1 RR REC II / 2

☐ described in this general manual
for the various types of tape transports see separate manuals

(GB)

Version 0 stands for deck without motor and heads.The various motors and heads give the various versions of tapetransports.
For codenumbers of motors and heads see separate manual of the corresponding tapetransport – version.

(NL)

Versie 0 staat voor een loopwerk zonder motor en magneetkoppen. Der vershillende motors en koppen bepalen der verschillende loopwerkversies.
De codenummers van de motors en koppen zijn vermeld in de documentatie van de betreffende loopwerkversie.

(F)

La version 0 correspond á une mécanique sans moteur ni têtes. Ce sont eu fait les differents moteurs et têtes qui sont de terminauts pour le n° que porte une ceztaine version d'une mécanique.
Veuillez vous reporter á la Documentation traitant d'un version précise en matiére de codes des mouteurs et des têtes.

(D)

Version 0 steht für : Laufwerk ohne Motor und Köpfe. Die verschiedenen Motoren und Köpfe bestimmen die verschiedenen Versionen der Laufwerke.
Die Codenummern der Motoren und Köpfe entnehmen Sie bitte der Dokumentation der betreffenden Version.

(I)

La versione 0 corrisponde ad un meccanismo privo di motore e testine. Infatti sono i motori e le testine che determinano il número di codice di una certa versione di un meccanismo.
Per quanto concerne i codici per motori e testine, riferirsi alla Documentazione de Servizio della versione precisa di cui si tratta.

SERVICE HINTS

(GB) DISMANTLING

- **Removal of the pressure roller 40+41 (76+73)**
  Press locklug of headsupport aside and pull up lever 40 (73).
- **Removal of take up clutch 402**
  Press locklugs apart (e.g.with a small pair of tweezers) and pull up 402.

ADJUSTMENTS and CHECKS

- Check of **pressure roller force** against capstan:
  The force of the pressure roller against the capstan should be 240 ± 30 p.
  Measuring method:
  Pb mode with arbitrary cassette. Push the pressure roller with a spring pressure gauge (4822 395 80028) away from the capstan – see fig.2
  Read force just in that moment when tape travel stops.
  This pressure cannot be adjusted!
- **Take up clutch 402**
  The torque can be measured with friction test cassette 4822 395 30054 in play mode.
  Requirement:
  take up torque: 40 – 65 pcm
  (permissible variation 5 pcm)
  supplying reel: 2 – 4 pcm
- **FF/REW torque**
  Use friction testcassette 4822 395 30054
  FF– or Rew – mode
  Stop supplying reel by hand and read friction force – requirement: 55 – 90 pcm
- Check of **tape travel and capstan adjustment:**
  Use mirror cassette 4822 395 30058 in play mode.
  If the tape moves up or down at the capstan the capstan has to be adjusted perpendicularly with the flywheel bearing 5.
  The tape should travel straight and smoothly between the tapeguides and along the capstan.Small deviations in this pattern are permissible since their effect is negligible with a normal cassette.

  Attention: In case of a reverse deck it is important to check tape travel in both directions after adjustment of the azimuth of the Rec./Pb – head ---- repeat if necessary.

  For **adjustment of the azimuth** of the Rec./Pb – head and the **tape speed** refer to the concerning service manual of the set.

(NL) SERVICE-HINTS

DEMONTAGE

- **Verwijderen van aandrukrol 40+41 (76+73)**
  Duw de vergrendellip van de kopsteun opzij en trek hefboom 40 (73) omhoog.
- **Verwijderen van opwikkelkoppeling 402**
  Duw de vergrendellippen opzij (bijvoorbeeld met een klein pincet) en trek de koppeling 402 omhoog.

AFSTELLINGEN en CONTROLES

- Controleren van de kracht **van de aandrukrol** tegen de kaapstander:
  De druk van de aandrukrol tegen de kaapstander moet zijn 240 ± 30p.
  Meetmethode:
  Plaats een willekeurige cassette en druk de weergavetoets in. Trek de aandrukrol met een veerdrukmeter (4822 395 80028) weg van de kaapstander – zie afbeelding 2.
  Lees de waarde af precies op het moment dat de band stopt.
  Deze druk kan niet worden bijgeregeld.
- **Opwikkelkoppeling 402**
  Het koppel kan worden gemeten met behulp van de frictietestcassette 4822 395 30054 in de weergavestand.
  Eis:
  opwikkelkoppel: 40 – 65 pcm
  (toegestane afwijking 5 pcm)
  afwikkelspoel: 2 – 4 pcm
- **koppel bij vooruit–/terugspoelen**
  Gebruik frictietestcassette 4822 395 30054 in de stand vooruitspoelen of terugspoelen.
  Houd de afwikkelspoel met de hand stil en lees de wrijvingskracht af – eis: 55 – 90 pcm.
- Controleren van **bandtransport en kaapstander–instelling:**
  Gebruik spiegelcassette 4822 395 30058 in de stand weergeven.
  Als de band bij de kaapstander op en neer gaat, moet de kaapstander verticaal worden bijgesteld met behulp van vliegwiellager 5.
  De band moet recht en soepel tussen de bandgeleiders langs de kaapstander lopen. Kleine afwijkingen in dit patroon zijn toelaatbaar omdat het effect ervan bij een normale cassette te verwaarlozen is.

  Aandacht: In geval van een deck dat zowel kan opnemen als weergeven, is het belangrijk om na de azimuthinstelling van de opname–/weergavekop het bandtransport in beide richtingen te controleren.
  Indien nodig de instelling herhalen.
  Voor **de azimuthinstelling** van de weergave–/opnamekop en de **bandsnelheid** gelieve u de servicehandleiding van het betreffende apparaat te raadplegen.

(F) CONSEILS D'ENTRETIEN

DEMONTAGE

Démontage du galet presseur 40+41 (76+73) Poussez sur le côté la patte de serrage du support de la tête de lecture et remontez le levier 40 (73).

Démontage de la griffe enrouleuse 402
Poussez à l'écart les pattes de serrage (par exemple avec des pincettes) et tirez la griffe 402 vers le haut.

dans les ateliers.

REGLAGES ET VERIFICATIONS

- Vérification de **la pression des galets presseurs** contre le cabestan :
  La pression exercée contre le cabestan doit être de 240 ± 30 p.
  Méthode de mesure :
  En mode lecture avec une cassette arbitraire.

Eloignez du cabestan le galet presseur avec un manomètre à ressorts (4822 395 80028)– Fig.2 Lisez la pression au moment où la bande cesse de défiler. Cette pression ne peut pas être réglée !

- **Griffe enrouleuse 402**
  Le moment de torsion peut être mesuré à l'aide de la cassette de test à friction 4822 395 30054 en mode lecture.
  Condition requise :
  Moment de torsion de l'enrouleuse : 40–65 MIC
  Variation autorisée : 5 MIC
  Bobine débitrice : 2 – 4 MIC

- **Moment de torsion FF/REW (bobinage rapide/rebobinage)**
  Utilisez la cassette de test à friction 4822 395 30054
  Mode bobinage rapide ou rebobinage.
  Arrêtez la bobine débitrice à la main et lisez la force de friction: 55 – 90 MIC exigés

- Contrôle du **défilement de bande et du réglage du cabestan** :
  Utilisez la cassette à miroir 4822 395 30058 en mode lecture Si la bande se déplace vers le haut ou vers le bas du cabestan, vous devez ajuster le cabestan perpendiculairement avec le palier 5 du volant.
  La bande doit défiler en ligne droite et doucement entre les guides de bande. De faibles déviations de ce modèle sont autorisées car leur effet est négligeable avec une cassette conven– tionnelle.

  Attention :
  Dans le cas d'une platine cassette à inversion de défilement, il est très important de vérifier le défilement de bande dans les deux sens après le réglage de l'azimut de la tête de lecture/enregistrement.
  Répétez cette opération si nécessaire.

  Pour **le réglage de l'azimut** de la tête de lecture/enregistrement et **la vitesse de bande,** reportez–vous au manuel d'entretien correspondant.

(D) AUSBAU

- **Andruckrolle 40+41 (76+73) entfernen:**
  Sperrzunge der Kopfträgerplatte zur Seite drücken und Hebel 40 (73) hochziehen.

- **Aufwickelkupplung 402 entfernen:**
  Rasthaken auseinanderdrücken (z.B. mit spitzer Pinzette) und gleichzeitig 402 hochziehen.

EINSTELLUNGEN und KONTROLLEN

- Kontrolle des **Anpreßrollendruckes**
  Der Druck der Anpreßrolle 41 (76) an die Tonachse soll 240 ± 30 p betragen.
  Meßmethode: Stellung "play" mit beliebiger Kassette.Anpreßrolle mit einer Federwaage (4822 395 80028) – Ansetzpunkt siehe Fig. 2 – von der Tonachse wegdrücken. Lesen Sie die Kraft in dem Moment ab,wenn der Bandtransport stoppt.
  Dieser Druck kann nicht eingestellt werden!

- **Aufwickelrutschkupplung 402**
  Das Aufwickelmoment wird mit der Meßkassette 4822 395 30054 in Stellung "play" gemessen.
  Anforderung:
  Aufwickelmoment: 40 – 65 pcm
  (zulässige Schwankung 5 pcm)
  Gegenzug: 2 – 4 pcm

- **FF / REW – Moment**
  Stellung "FF" bzw. "REW"
  Meßkassette 4822 395 30054 verwenden.
  Jeweiligen Abwickelteller mit der Hand blockieren und Moment ablesen.
  Anforderung: 50 – 90 pcm

- Kontrolle des **Bandlaufs** und der **Tonwelleneinstellung:**
  Verwenden Sie Spiegelkassette 4822 395 30058 in Stellung "play".
  Wenn sich das Band an der Tonwelle nach oben oder unten bewegt,muß die Tonwelle mit dem Exzenterlager 5 senkrecht gestellt werden.
  Das Band soll gerade und genau fluchtend zwischen den Bandführungen der Köpfe und an der Tonwelle entlang laufen.Geringe Abweichungen in diesem Bild sind zulässig, da sie bei einer normalen Kassette nicht beeinträchtigend wirken.

  Achtung: Bei Reverse – Laufwerken ist es wichtig,nach Einstellung des Azimuths den Bandlauf in beiden Richtungen zu kontrollieren ------ falls notwendig, wiederholen.
  Für Einstellung des **Azimuths** des REC/Pb –Kopfes und der **Bandgeschwindigkeit** siehe Servicedokumentation des betreffenden Gerätes.

(I) CONSIGLI DI SERVIZIO ASSISTENZA

SMONTAGGIO

- **Smontaggio del rullino pressanastro 50+41 (76+73)**

  Spingere la linguetta di bloccaggio del supporto delle testine lateralmente e tirare in alto la leva 40 (73).

- **Smontaggio dell'accoppiamento di avvolgimento 402**

  Spingere le linguette di bloccaggio lateralmente (p.e. con una piccola pinza) e tirare in alto l'accoppiamento 402.

REGISTRAZIONI e CONTROLLI

- Controllo della **forza del rullino pressanastro** contro il rullino trainonastro:
  La forza del rullino pressanastro contro il rullino trainonastro deve essere di 240 ± 30 p.

  Metodo di misurazione:
  Inserire una qualsiasi cassetta e premere il tasto di riproduzione. Allontanare il rullino pressanastro con un misuratore della pressione elicoidale (4822 395 80028) dal rullino trainonastro (fig. 2).
  Leggere il valore proprio al momento che il nastro si arresta.
  Non è possibile correggere questa pressione!

- **Accoppiamento di avvolgimento 402**

  La coppia può essere misurata con l'aiuto della cassetta di controllo della frizione 4822 395 30054 nel modo di riproduzione.
  Valori prescritti:
  Coppia di avvolgimento: 40–65 pcm.
  (tolleranza: 5 pcm)
  Bobina di svolgimento : 2–4 pcm.

- **Coppia di avvolgimento/riavvolgimento**

  Servirsi della cassetta di controllo della frizione 4822 395 30054 nel modo di avvolgimento o riavvolgimento.
  Bloccare con la mano la rotazione della bobina di svolgimento e leggere la forza di frizione.
  Valore prescritto: 55–90 pcm.

- Controllo della regolazione del **trasporto del nastro e** del rullino trainonastro

  Servirsi della cassetta a specchio 4822 395 30058 nel modo di riproduzione.
  Se il nastro si sposta in alto ed in basso dalla parte del rullino trainonastro, registrare il rullino trainonastro in senso verticale con l'aiuto del cuscinetto del volano 5.
  Il nastro deve passare ben diritto ed agevolmente tra le guide del nastro lungo il rullino trainonastro. Sono consentite piccole deviazioni dato che il loro effetto è trascurabile con l'uso di una cassetta normale.

  Attenzione: in caso l'apparecchio permetta sia la registrazione che la riproduzione, a registrazione avvenuta dell'azimut della testina di registrazione/riproduzione è importante controllare il trasporto del nastro nei due sensi. Se necessario, ripetere la registrazione.
  Per la **registrazione dell'azimut** della testina di registrazione/riproduzione e la **velocità di trasporto del nastro**, consultare il manuale di servizio assistenza dell'apparecchio in questione.

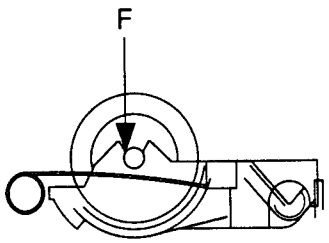
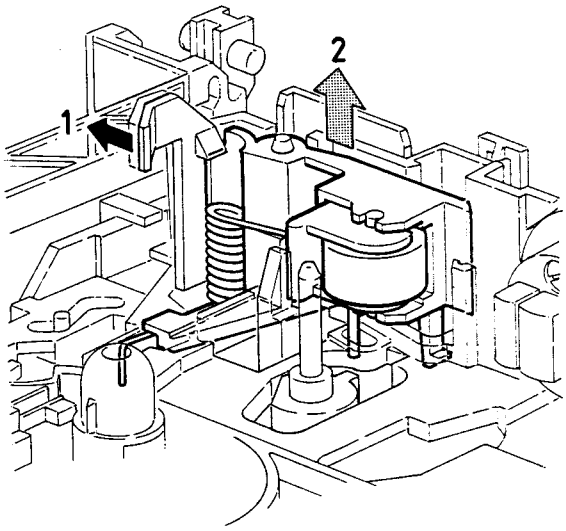


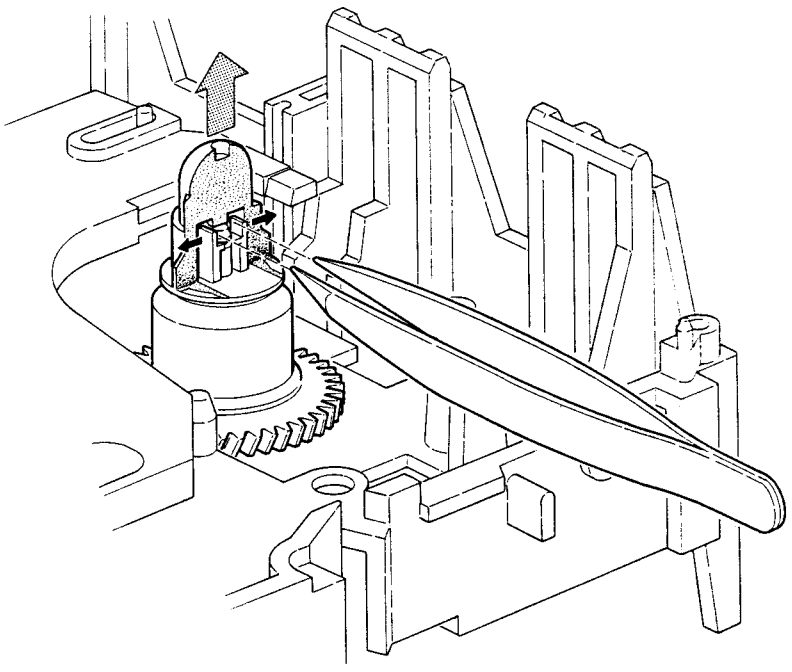
FIG 2

MDA.00429
T07/646

REMOVAL OF PINCH ROLLER

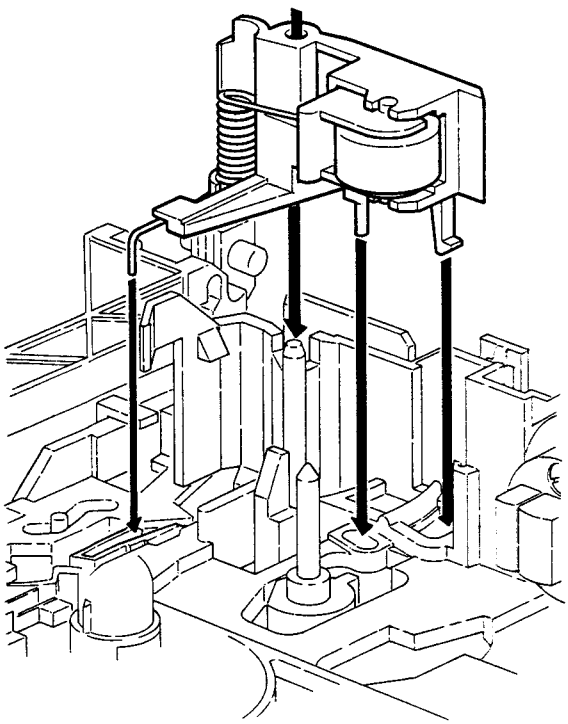


REMOVAL OF CARRIER (9), (20)

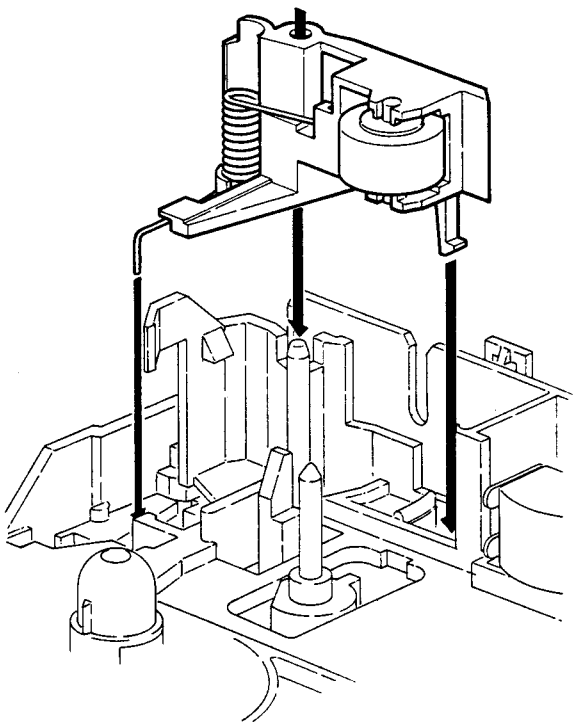


MOUNTING OF PINCH ROLLER

for autoreverse decks

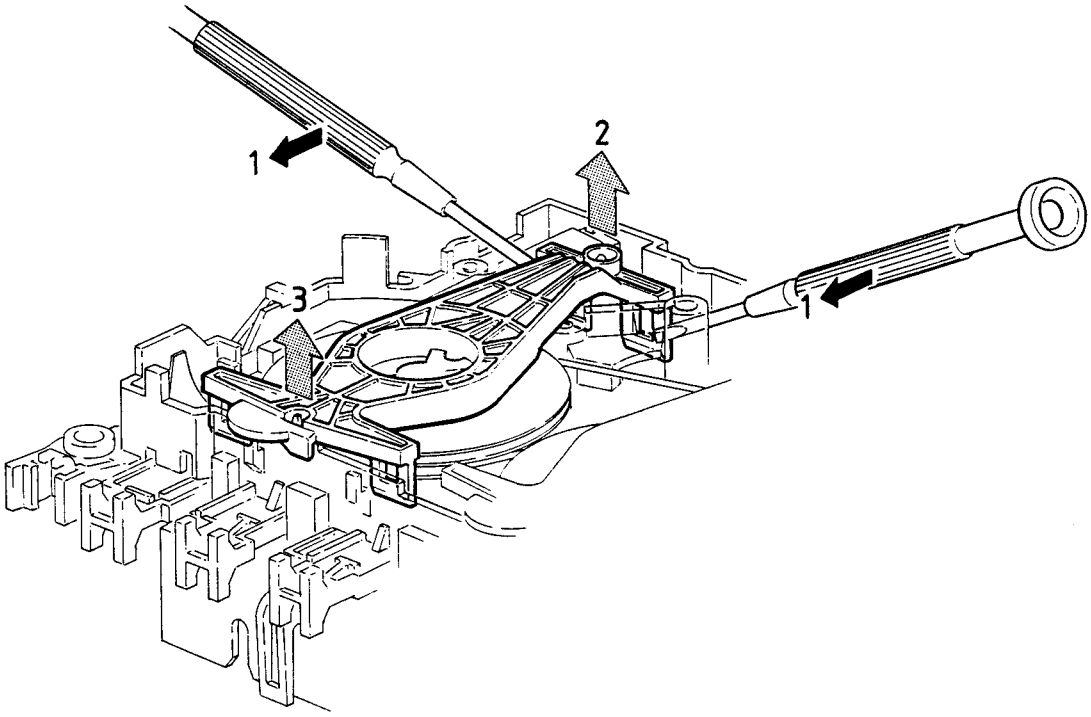


for single direction decks



REMOVAL OF BEARING PLATE ⑦⑥⑦

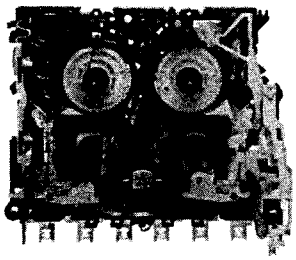
Begin rearwards as indicated



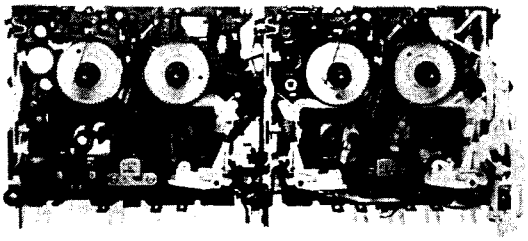
Tape transport RN/RR
RDN/RDR

General documentation

Service
Service
Service



44 993 A11



44 990 A11

Service Manual

(GB) MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Capstan
- Pressure roller

(NL) ONDERHOUD

Aanbevolen wordt het apparaat na ca. 500 bedrijfsuren schoon te maken

Schoonmaken met alcohol of spiritus:

- Wiskop
- Opneem-/weergeefkop
- Toonas
- Drukrol

(F) ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Cabestan
- Galet presseur

(D) WARTUNG

Es empfiehlt sich, das Gerät nach ca. 500 Betriebsstunden zu reinigen

Reinigen mit Alkohol oder Spiritus:

- Löschkopf
- Aufnahme/Wiedergabe-Kopf
- Tonachse
- Andruckrolle

(I) MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Capstan
- Rullo preminastro

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SUMMARY OF SERVICE CODE NUMBERS

RN - TAPE TRANSPORTS

	RN 1	*RN 2*	*RN 3*	*RN 4*	*RN 5*	*RN 6*	*RN 7*			
Motor MMI-6H2LWKR 4822 361 21323	x	x		x		x	x			
Motor MMI-6H2LWDR 4822 361 21298										
Motor MMI-6H9LWDR 4822 361 21285										
Motor MMI-6S9LR 4822 361 21425			x							
Motor MMI-6S9LRK 4822 361 21446					x					
Head erase 4822 249 20072	x	x	x	x	x					
Head dummy 4822 443 61616 4822 404 10685						x	x			
Head Rec/Pb 4822 249 10334	x		x		x					
Head Rec/Pb 4822 249 10397		x		x		x	x			
Damper, Motor (S) 4822 529 10193	x									
Damper, Motor (D) 4822 529 10254		x	x	x	x	x	x			
Screw, Motor (S) 4822 502 30441	x									
Screw, Motor (D) 4822 502 11866		x	x	x	x	x	x			
Support, Motor (S) 4822 403 53996	x									
Switch, Indicat."PLAY" 4822 271 30598	x	x		x		x	x			
Switch, "RECORD" 4822 278 90624		x		x						

GENERAL PARTS RN - TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
98	4822 358 30928	drive belt RN0 D (short)
101/126	4822 492 51473	spring azimuth
401	4822 691 10296	RN0 assy
402	4822 528 20676	take-up clutch assy

SUMMARY OF SERVICE CODE NUMBERS

RDN - TAPE TRANSPORTS

	RDN 1	*RDN 2*	*RDN 3*	*RDN 4*	*RDN 5*	*RDN 6*	*RDN 7*	*RDN 8*	*RDN 9*	*RDN 10*
Motor MMI-6H2LWKR 4822 361 21323										
Motor MMI-6H2LWDR 4822 361 21298		x		x				x		x
Motor MMI-6H9LWDR 4822 361 21285	x		x		x	x	x		x	
Motor MMI-6S9LR 4822 361 21425										
Motor MMI-6S9LRK 4822 361 21446										
Head erase 4822 249 20072	x	x	x	x	x	x	x	x	x	x
Head dummy 4822 443 61616 4822 404 10685	x	x	x	x	x	x	x	x	x	x
Head Rec/Pb 4822 249 10334	x	x	x	x	x	x				
Head Rec/Pb 4822 249 10397							x	x	x	x
Damper, Motor (S) 4822 529 10193										
Damper, Motor (D) 4822 529 10254	x	x	x	x	x	x	x	x	x	x
Screw, Motor (S) 4822 502 30441										
Screw, Motor (D) 4822 502 11866	x	x	x	x	x	x	x	x	x	x
Support, Motor (S) 4822 403 53996										
Switch, Indicat."PLAY" 4822 271 30598	x			x	x		xx	xx		x
Switch, "RECORD" 4822 278 90624							x	x		x

GENERAL PARTS **RDN** - TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
98	4822 358 30928	drive belt RN0 D (short)
101/126	4822 492 51473	spring azimuth
401	4822 691 10296	RN0 assy
402	4822 528 20676	take-up clutch assy

SUMMARY OF SERVICE CODE NUMBERS

RR RECording - REVERSE TAPE TRANSPORTS

	RR-RECI/ 1		*RR-RECII/1*	*RR-RECII/2*	*RR-RECII/3*			
Motor MMI-6H2LWKR 4822 361 21323								
Motor MMI-6H2LWDR 4822 361 21298								
Motor MMI-6H9LWDR 4822 361 21285								
Motor MMI-6S9LR 4822 361 21425	x		x					
Motor MMI-6S9LRK 4822 361 21446				x	x			
Combi Head rotation 4822 249 10434	x		x	x	x			
Damper, Motor (D) 4822 529 10254	x		x	x	x			
Screw, Motor (D) 4822 502 11866	x		x	x	x			
Switch, Indicat."PLAY" 4822 271 30598								
Switch, "RECORD" 4822 278 90624								
Lever, mode select 4822 403 70386			x	x	x			

GENERAL PARTS RR REC - REVERSE TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38/61/212	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
73	4822 402 10038	lever, pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
98	4822 358 30928	drive belt RN0 D (short)
106	4822 403 70385	lever, antiselect (WT02 onwards)
204	4822 403 70387	lever, recording protection
205	4822 520 20725	bearing, recording protection
209	4822 492 33272	spring, tension
402	4822 528 20676	take-up clutch assy
404	4822 691 10295	RR-RECI/0 assy
405	4822 691 20665	RR-RECII/0 assy
1025	4822 278 90624	switch, direction indication

SUMMARY OF SERVICE CODE NUMBERS

RR / RDR - REVERSE TAPE TRANSPORTS

	RR 1	*RR 2*	*RR 3*	*RDR 1*	*RDR 2*	*RDR 3*	*RDR 4*	*RDR 5*	*RDR 6*	*RDR 7*	*RDR 9*
Motor MMI-6H2LWKR 4822 361 21323	x	x	x								
Motor MMI-6H2LWDR 4822 361 21298						x	x				
Motor MMI-6H9LWDR 4822 361 21285				x	x			x	x	x	x
Motor MMI-6S9LR 4822 361 21425											
Motor MMI-6S9LRK 4822 361 21446											
Head erase 4822 249 20072				x	x	x	x	x	x	x	x
Head Rec/Pb 4822 249 10334				x	x	x		x	x	x	
Head Rec/Pb 4822 249 10397							x				x
Head (reverse deck) 4822 249 30153	x			x	x	x		x	x	x	
Head (reverse deck) 4822 249 30156		x	x				x				x
Damper, Motor (D) 4822 529 10254	x	x	x	x	x	x	x	x	x	x	x
Screw, Motor (D) 4822 502 11866	x	x	x	x	x	x	x	x	x	x	x
Switch, Indicat."PLAY" 4822 271 30598	x	x	x	x	x	x	xx	x	x	x	x
Switch, "RECORD" 4822 278 90624							x				

GENERAL PARTS RR / RDR - REVERSE TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38/61	4822 520 10134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
73	4822 402 10038	lever, pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
98	4822 358 30928	drive belt RN0 D (short)
101/126	4822 492 51473	spring azimuth
106	4822 403 70385	lever, antiselect (WT02 onwards)
111	4822 492 70393	head clip
121	4822 403 53876	lever, mode select
401	4822 691 10296	RN0 assy
402	4822 528 20676	take-up clutch assy
403	4822 691 10294	RR0 Pb assy
1025	4822 278 90624	switch, direction indication

* **Bearing of rotary head:** tolerance in multi–cavity tools adapted.

Fault: Head jams when turned.
This effect occurs only in tape transports assembled with head supports pos.72 just after production start with multi–cavity tools and appears when the drive is used (or was stored) in a climate of more than 80% relative humidity.

Head supports produced with multi–cavity tools can be identified by a 2 digit marking – see fig.1

Bad head supports, where the failure can occur, have only been used in tape transports produced from production week 9024 up to 9031 – hot stamped in the chassis **024xA up to 031xA** (x stands for the production day 1–5, A or B stands for the shift which the part was produced in).

For service purposes the complete transport mechanism RR0 assy 4822 691 10294 is available.

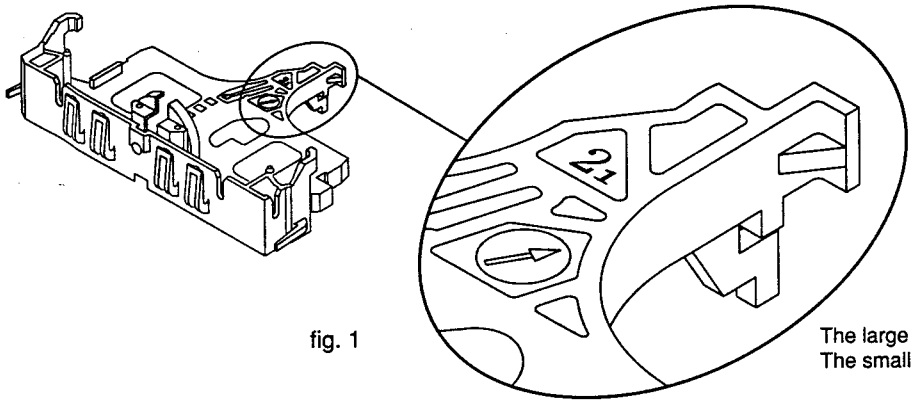


fig. 1

The large digit stands for the tool number.
The small digit stands for the cavity of this tool.

* **Delay board**

To ensure a reliable switch over of the MODE SELECTOR to "normal mode" after full auto shutoff, an electronic delay–circuit was added to all auto reverse tape transports with production change code **WT01**.
For this electronic delay circuit there were 2 different versions available —> for schematic diagrams and assembly drawings see next two pages.

From production week 9042 with change code **WT02** onwards this electronic delay–circuit has been replaced by a mechanical solution:

lever pos. 70 changed
lever pos.106 added 4822 403 70385

Attention: Lever pos.106 is not mounted on all RR0Pb (4822 691 10294), RR–RECI/0 (4822 691 10295) and RR–RECII/0 (4822 691 20665) tape transports, available for service purposes —> because of the changed lever pos.70 the auto–shutoff function does not work without lever pos.106!
If a tape transport with change code **WT01** will be exchanged by a tape transport with change code **WT02** lever pos.106 has to be ordered extra and mounted on the new tape transport. —> see fig.2

From June 92 onwards it is organized that the tape transports will be delivered with lever pos.106 mounted.

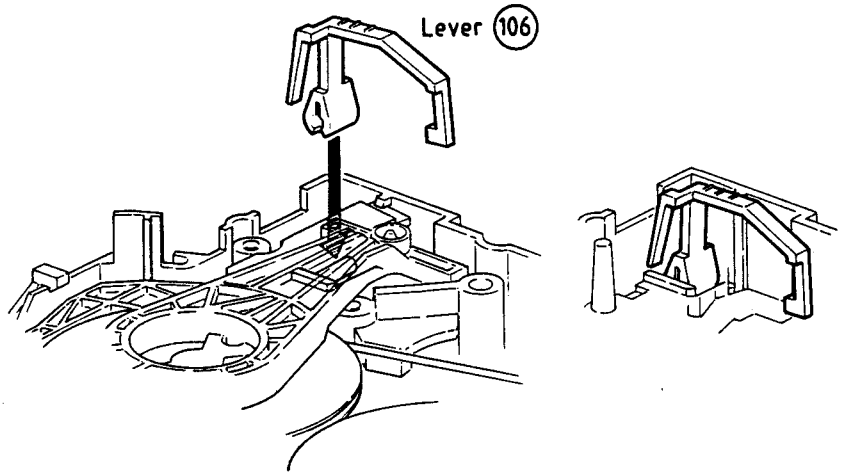


fig. 2

4089

Service
Service
Service

RDN/RDR

A92-159

Product Service Group CE Audio

Service Information

CORRECTIONS TO THE SERVICE MANUAL

* **Front–page**

  Maintenance: Statement, that BELTS should be cleaned with alcohol or spirit, is wrong.

  Correct: Belts must **n o t** be cleaned with alcohol or spirit !
  Reason : Belts are treated with silicone milk to avoid mechanical oscillation.

* **Block diagram** which describes the modular structure of the RN/RR, RDN/RDR system has to be updated.
  For new updated block diagram see annex.

* **Service hints**

  In the service manual there is stated: The head support (pos.56/72) cannot be removed because a special tool is necessary to assemble spring pos.39.
  Now an easy method has been found to assemble spring pos.39 without a special tool —> see annex "Service Hints"

* **Exploded View RR–parts**

  Because of the new RR–Recording–types the exploded view for RR parts has been revised. —>
  For the new, updated, exploded view see annex.

COMPONENTS ADDED TO THE SERVICE PARTSLIST

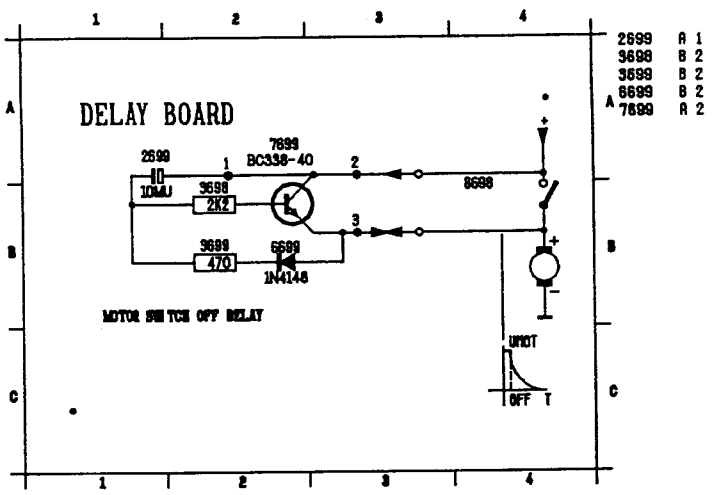
pos.	7/67	4822 520 10718	bearing plate
pos.	43	4822 404 10853	slide, key locking
pos.	106	4822 403 70385	lever, antiselect
pos.	404	4822 691 20665	RR RECII/0 assy
pos.	405	4822 691 10295	RR RECI/0 assy

CHANGES IN COARSE OF PRODUCTION

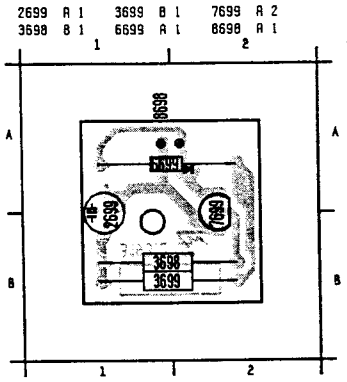
(Only reverse decks RR)

* To avoid "tape salad" after pressing the PLAY button, lever pos.91 was adapted.
  The adapted lever has been used from production week 9004 onwards – hot stamped in chassis **004xA** (x stands for production day 1–5, A or B stands for the shift which the part was produced in).

VERSION 2



DELAY BOARD / COMPONENTSIDE VIEW / AS9500



CAD-REF: PC.AS9500.P0.02.AS9500.00.SERV-B / 90-04-12

(GB)

REVERSE MODE -position 2 of mode selector 121

"FF" or "REW": On tape end full "auto shut off" will be activated and "mode selector" will be switched over to "normal mode".

To ensure a reliable switching over of the "mode selector in case of "full auto shut off" it is necessary that flywheel makes at least 3 turns after switching off the supply. Therefore a **motor shut off-delay** has been added.

(NL)

REVERSE MODE - positie 2 van keuzeschakelaar 121

"FF" of "REW" : Aan het einde van de band wordt de automatische uitschakeling geactiveerd en wordt keuzeschakelaar 121 naar "normal mode" geschakeld.

Om bij automatische uitschakeling een betrouwbare omschakeling van de keuzeschakelaar te waarborgen, is het noodzakelijk dat het vliegwiel na de uitschakeling nog minstens 3 omwentelingen maakt.
Om dit te bereiken is een **uitschakelingsvertraging** voor de motor ingebouwd.

(F)

MODE REVERSE (retour en arrière)- position 2 ou sélecteur de mode 121

"FF" ou "REW" : En fin de bande, l'arrêt total automatique sera activé et le "sélecteur de mode" commutera sur "mode normal".

Pour garantir une commutation fiable du "sélecteur de mode" en cas d'arrêt total automatique, il faut que le volant effectue au moins 3 tours après la mise hors circuit. C'est la raison pour laquelle un **retard d'arrêt du moteur** a été intégré.

(D)

REVERSE MODE -Position 2 des Mode-Selektors 121

"FF" oder "REW": Am Bandende schaltet die automatische Endabschaltung ab und der "Mode Selektor" wird auf "normal mode" umgeschaltet.

Um ein zuverlässiges Umschalten des "Mode Selektors" nach der automatischen Endabschaltung zu gewährleisten, ist es notwendig, dass die Schwungmasse nach dem Abschalten noch mindestens 3 Umdrehungen macht.
Deshalb wurde eine **Motor-Abschaltverzögerung** eingebaut.

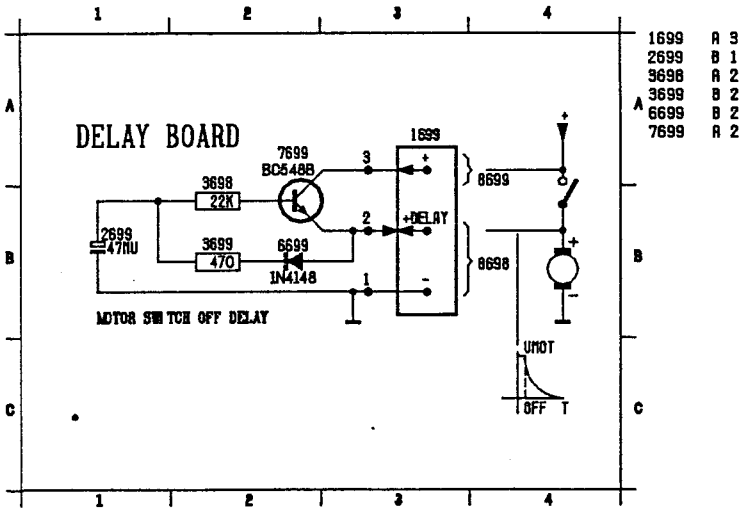
(I)

MODO REVERSE - posizione 2 del selettore 121

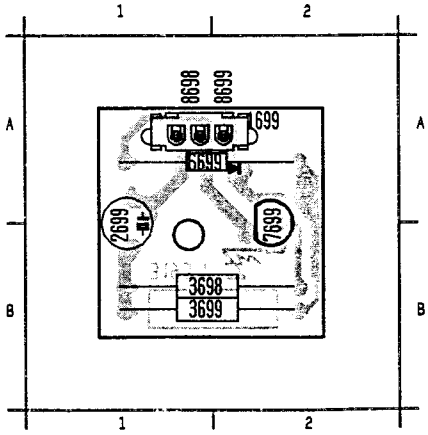
"FF" o "REW": alla fine del nastro nella cassetta, l'apparecchio viene spento automaticamente ed il selettore 121 commutato nel "modo normale".

Onde assicurare allo spegnimento automatico una commutazione affidabile del selettore è necessario che il volano dopo lo spegnimento faccia ancora almeno 3 giri. Per tale ragione è incorporato un ritardo di arresto per il motorino.

VERSION 1



DELAY BOARD / SIDE-B VIEW /



CAD-REF: PC.AS9500.PO.D1.AS9500.00.SERV-B / 90-02-27

401	4822 498 10409		429	4822 303 30296		458	4822 290 80313	
402	4822 450 61715		431	Not Applicable		459	4822 492 51734	
403	4822 443 63278		432	4822 462 40683		461	4822 492 51733	
404	4822 443 62957		433	4822 532 51871		462	4822 421 60162	
406	4822 381 11252		434	4822 444 30435		463	4822 466 62038	
407	4822 444 60738		436	4822 492 70807		464	4822 411 61778	
408	4822 423 41127		437	4822 528 10711		466	4822 404 10837	
409	4822 492 42535		438	4822 276 13079		467	4822 380 20391	
411	4822 410 61185		439	4822 535 93223		468	4822 458 30608	
412	4822 410 61186		441	4822 404 60471		469	4822 411 61779	
413	4822 410 61187		442	4822 492 51724		471	4822 459 11003	
414	4822 410 61188		443	4822 325 20138		472	4822 492 51374	
416	4822 410 61189		444	4822 532 61103		473	4822 411 61777	
417	4822 410 61191		446	4822 532 61104		474	4822 423 41128	
418	4822 410 61184		447	4822 410 61192		476	5322 255 40397	
419	4822 411 61776		448	4822 411 61781		477	4822 492 70368	
421	4822 423 90166		449	4822 381 11253		478	4822 403 70382	
422	4822 529 10257		451	4822 454 12721		479	4822 413 41644	
423	4822 691 20596		452	4822 454 12737		481	4822 410 61193	
424	4822 492 70156		453	4822 255 40179		482	4822 410 61194	
426	4822 255 40179		454	4822 492 63982		483	4822 421 40138	
427	4822 458 30607		456	4822 290 80605				
428	4822 458 30609		457	4822 290 80606		IFU	4822 736 21071	

		MISCELLANEOUS	
1044		SWITCH LEAF	4822 276 12163
1050		SPEAKER 8Ω 2W	4822 240 30593
1051		SPEAKER 8Ω 2W	4822 240 30593
1054		SPEAKER 16Ω 4W	4822 240 30592
1101		SWITCH BAND	4822 276 12951
1300	⚠	FUSE T1.25A	4822 070 31252
1301	⚠	SOCKET MAINS	4822 265 20287
1302		SWITCH POWER	4822 276 12571
1303		SOCKET HEADPHONE	4822 267 30553
1304		SOCKET CINCH CD	4822 267 30933
1305		SOCKET CINCH CD	4822 267 30933
1307	⚠	VOLTAGE SELECTOR	4822 272 10225
1309	⚠	FUSE T1.25A	4822 071 51252
1401		LCD CD	4822 130 90762
1402		LCD TUNER	4822 130 90763
1410		SWITCH KEY	4822 276 12276
1411		SWITCH KEY	4822 276 12276
1412		SWITCH KEY	4822 276 12276
1413		SWITCH KEY	4822 276 12276
1414		SWITCH KEY	4822 276 12276
1415		SWITCH KEY	4822 276 12276
1416		SWITCH KEY	4822 276 12276
1417		SWITCH KEY	4822 276 12276
1418		SWITCH KEY	4822 276 12276
1419		SWITCH KEY	4822 276 12276
1420		SWITCH KEY	4822 276 12276
1421		SWITCH KEY	4822 276 12276
1422		SWITCH KEY	4822 276 12276
1423		SWITCH KEY	4822 276 12276
1424		SWITCH KEY	4822 276 12276
1425		SWITCH KEY	4822 276 12276
1426		SWITCH KEY	4822 276 12276
1580		SWITCH TOGGLE	4822 277 11331
1583		SWITCH TBG	4822 276 12648
1585		SOCKET MIC	4822 267 30553
1707		SWITCH RECORD	4822 277 20594
5110			
5111		FILTER PACKAGE	4822 242 72977
5112			
5113		FILTER 455kHZ	4822 158 60511
5114		FILTER 455kHZ	4822 158 60511
5150		X'TAL 7.2MHZ	4822 242 72976
5401		RESONATOR 6MHZ	4822 242 71854
5402		X'TAL 32.768kHZ	4822 242 70938
5861		RESONATOR	4822 242 72565

	CAPACITORS	
2103	TRIM 3-11pF	4822 125 60101
2109	TRIM 4.2-20pF	4822 125 50355

4357

Service Information

	1993 - 05 - 26
AZ8214/00	
	A93 - 617

Product Service Group CE Audio

Fault : Display No Segment/half Segment problem

Remedy : Change 2401 from 47µF to 220µF 16V 20% 4822 124 40196.

ADJUSTMENT TABLE (valid for modified electronic acc. to service solution "Replacement RCD1→RCD1.2")

CD-PART					
LASER CURRENT					
The APC (Automatic Power Control) for the laser diode is located on the disc drive and has been adjusted in the production line. Therefore for service purpose it is not intended to adjust the laser current.					
TRACKING OFFSET					
STOP		◇6 ◇10	3840		Adjust to 0V DC ±10 mV
TRACKING BALANCE					
Service pos. 1 * Display shows "-"		◇8 ◇2	3803	Adjust to 0V DC offset	
TRACKING GAIN					
Play with Test-Disc 5 Connect pin 3 of M51564 to V_{ref} ◇2	1100 Hz 180 mVrms	see Fig. 1	3816		CHX = 100 mV/DIV CHY = 100 mV/DIV Adjust according to FIG.3
FOCUS GAIN					
Play with Test-Disc 5	960 Hz 300 mVrms	see Fig. 2	3813		CHX = 200 mV/DIV CHY = 200 mV/DIV Adjust according to FIG.3
FOCUS OFFSET					
Play with Test-Disc 5		◇9 ◇2	3821		Max. HF
		◇7 ◇2	Check only	DC voltage measured = Ux	
			3821	Adjust to $\frac{Ux}{2}$	

* How to enter service pos.1 see service test program
Test disc 5 4822 397 30096

FIG. 1

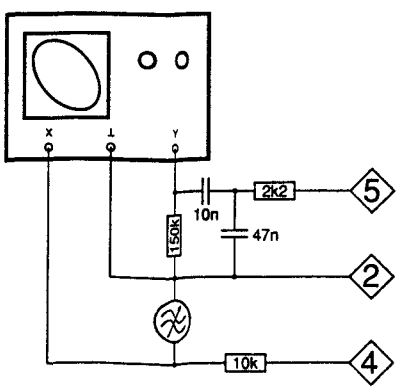


FIG. 2

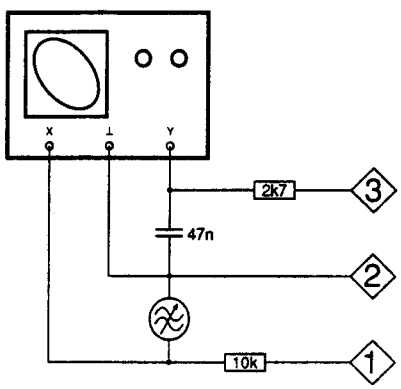
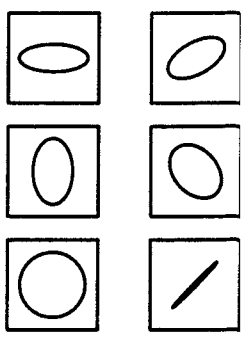


FIG. 3



4357

Service Information

1993 - 04 - 19

AZ8210 and AZ8214 families

A93 - 187

Product Service Group CE Audio

To **prevent lens knocking against dust cover during "power on"** do the following on the CD board.
change 2829 from 220µF to 4.7µF 4822 124 23175

To **improve playability (test disc 7A/track 8)** do the following on the CD board.
change 2807 from 15pF to 33pF 4822 122 33069
3806 from 12kΩ to 4.7kΩ 4822 116 52283

To **adapt to small leaded component** do the following on the CD board.
change 3841/3842 from 1kΩ to 680Ω 4822 116 52228
3843/3844 from 470Ω to 330Ω 4822 116 52219
2843/2844 from 3.3nF to 4.7nF 4822 126 11714
2847/2848 from 33nF to 47nF 4822 126 12785

Due to **logistic problem** the RCD-1D mechanism will be available for limited stocks after which all defective RCD-1D mechanisms (see figure 1) must be replaced with RCD-1.2D mechanism.

CD mechanism:	**Service code:**
RCD-1D	4822 691 20596
RCD-1.2D	4822 691 20768

For this reason the following are the **minimum necessary changes** required to adapt the electronics for use with RCD-1.2D mechanism:

Item	**From**	**To**	**Remarks**
2814	10µF	4.7µF	Focus search
2829	220µF	4.7µF	Vref buffer
3804	15k	8.2k	HF amplifier
3805	15k	8.2k	
3871	6.8k	18k	Sledge section
3872	100k	47k	

After adaptations, electrical adjustments must be done according to the enclosed new adjustment table.

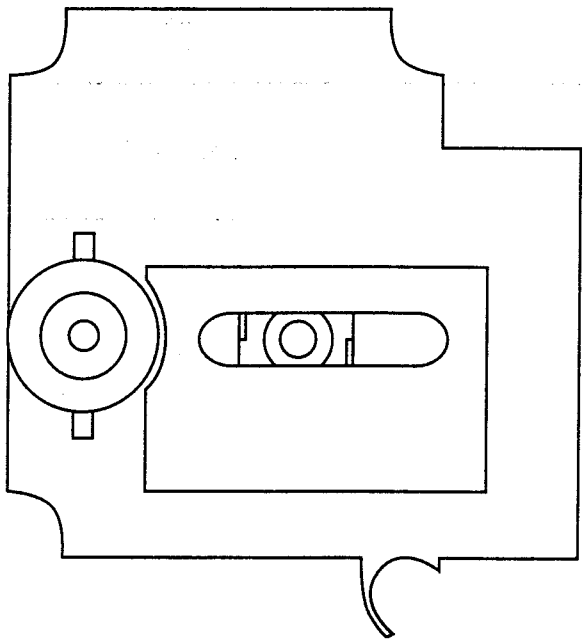


FIGURE 1. OLD RCD-ID MECHANISM

Service
Service
Service

CAPACITORS

2112	CHIP 470pF	4822 122 32882
2113	PP 590pF 160V	4822 121 43706
2114	PP 390pF 160V	4822 121 43705
2115	TRIM 4.2-20pF	4822 125 50355
2116	CHIP 100nF	4822 122 32893
2117	CHIP 100NF	4822 122 32893
2118	CHIP 180pF	4822 122 31768
2119	CHIP 100nF	4822 122 32893
2123	CHIP 15nF	4822 122 31782
2124	CHIP 15nF	4822 122 31782
2134	CHIP 22nF	4822 122 31797
2135	CHIP 15pF	4822 122 32504
2141	CHIP 15pF	4822 122 32504
2142	CHIP 470pF	4822 122 31727
2143	CHIP 100pF	4822 122 31765
2144	CHIP 470pF	4822 122 31727
2146	CHIP 1nF	5322 122 31647
2148	CHIP 6.8pF	4822 122 32507
2149	CHIP 12pF	4822 122 33205
2152	CHIP 10nF	4822 122 32442
2154	CHIP 470pF	4822 122 31727
2161	CHIP 470pF	4822 122 31727
2162	CHIP 100nF	4822 122 32893
2163	CHIP 100nF	4822 122 32893
2166	CHIP 100nF	4822 122 32893
2167	CHIP 100nF	4822 122 32893
2168	CHIP 10nF	4822 122 32442
2169	CHIP 1nF	5322 122 31647
2171	CHIP 100nF	4822 122 32893
2173	CHIP 180pF	4822 122 31768
2174	CHIP 2.2nF	4822 122 33704
2176	CHIP 22nF	4822 122 31797
2181	CHIP 6.8pF	4822 122 32507
2185	CHIP 3.9pF	4822 122 32081
2186	CHIP 2.2pF	4822 122 32425
2406	TRIM 20pF 100V	4822 125 50309

RESISTORS

3104	CHIP 100kΩ	4822 051 20104
3106	CHIP 2.2kΩ	4822 051 20222
3108	CHIP 4.7kΩ	4822 051 20472
3109	CHIP 2.2kΩ	4822 051 20222
3110	CHIP 10kΩ	4822 051 20103
3111	TRIM 20kΩ	4822 100 20589
3114	CHIP 47kΩ	4822 051 20473
3115	CHIP 47kΩ	4822 051 20473
3117	CHIP 100kΩ	4822 051 20104
3119	CHIP 47kΩ	4822 051 20473
3120	CHIP 6.8kΩ	4822 051 20682
3121	CHIP 100kΩ	4822 051 20104
3123	CHIP 10kΩ	4822 051 20103
3124	CHIP 10kΩ	4822 051 20103
3133	CHIP 1MΩ	4822 051 20135
3136	CHIP 1MΩ	4822 051 20135
3138	CHIP 1kΩ	4822 051 10102
3139	CHIP 1kΩ	4822 051 10102
3141	CHIP 2.2kΩ	4822 051 20222
3142	CHIP 2.2kΩ	4822 051 20222
3149	CHIP 4.7kΩ	4822 051 20472
3156	CHIP 22kΩ	4822 051 20223
3157	CHIP 220kΩ	4822 051 20224
3161	CHIP 4.7kΩ	4822 051 20472
3167	CHIP 100kΩ	4822 051 20104
3168	CHIP 10Ω	4822 051 20109
3172	CHIP 330kΩ	4822 051 20334
3173	CHIP 220kΩ	4822 051 20224
3174	CHIP 10kΩ	4822 051 20103
3177	CHIP 22kΩ	4822 051 20223
3178	CHIP 1MΩ	4822 051 20135
3179	CHIP 4.7MΩ	4822 051 10475
3181	CHIP 10kΩ	4822 051 20103
3187	CHIP 0Ω	4822 051 20008
3188	CHIP 0Ω	4822 051 20008
3190	CHIP 0Ω	4822 051 20008
3198	CHIP 0Ω	4822 051 20008
3199	CHIP 0Ω	4822 051 20008
3327 △	NFR25 10Ω	4822 052 10109
3580	POTM 50KA X 2	4822 101 50276
3600	POTM 50KB X 2	4822 102 10417
3778 △	NFR25 4.7Ω	4822 052 10478
3802 △	NFR25 4.7Ω	4822 052 10478
3803	TRIM 20kΩ	4822 100 20589
3809 △	NFR25 4.7Ω	4822 052 10478
3813	TRIM 20kΩ	4822 100 20589
3816	TRIM 20kΩ	4822 100 20589
3821	TRIM 20kΩ	4822 100 20589
3840	TRIMM 20kΩ	4822 100 20589

COILS

5001 △	TRANSFOR MAINS	4822 146 30968
5101	COIL 0.47µH	4822 157 50967
5102	COIL 1µH	4822 157 51195
5103	FM RF COIL	4822 156 30947
5104	FM RF COIL	4822 156 30947
5105	COIL	4822 157 53883
5106 ┐	ANTENNA COIL	4822 158 60593
5107 ┘		
5108	COIL	4822 157 53884
5109	COIL 110µH	4822 157 60517
5403	COIL 2.2µH	4822 157 62552
5404	COIL 2.2µH	4822 157 62552
5405	COIL 2.2µH	4822 157 62552
5406	COIL 2.2µH	4822 157 62552
5410	COIL 2.2µH	4822 157 62552
5411	COIL 2.2µH	4822 157 62552
5412	COIL 2.2µH	4822 157 62552
5413	COIL 2.2µH	4822 157 62552
5414	COIL 2.2µH	4822 157 62552
5415	COIL 2.2µH	4822 157 62552
5420	COIL 2.2µH	4822 157 62552
5701	COIL 120µH	4822 157 53905
5702	COIL 120µH	4822 157 53905

SEMICONDUCTORS

6101	BA484	4822 130 32214
6102	1N4148	4822 130 30621
6103	BB304	4822 130 81091
6104	BB304	4822 130 81091
6105	1SV149	4822 130 81673
6106	1N4148	4822 130 30621
6107	1SV149	4822 130 81673
6108	1N4148	4822 130 30621
6109	1N4148	4822 130 30621
6150	1N4148	4822 130 30621
6151	1N4148	4822 130 30621
6152	1N4148	4822 130 30621
6153	1N4148	4822 130 30621
6154	1N4148	4822 130 30621
6170	BZX79/B5V6	4822 130 34173
6171	1N4148	4822 130 30621
6172	1N4148	4822 130 30621
6173	1N4148	4822 130 30621
6300 △	KBU4D	4822 130 80305
6301	1N4148	4822 130 30621
6302	1N4148	4822 130 30621
6303	1SS106	4822 130 32574
6304	HZ6B3L	4822 130 81758
6305	1SS106	4822 130 32574
6306	1N4148	4822 130 30621
6313	BZX79C9V1	4822 130 30862
6314	BZX79C5V6	4822 130 34173
6330	1N4148	4822 130 30621
6331	1N4148	4822 130 30621
6332	BZX79C6V2	4822 130 34167
6401	1N4148	4822 130 30621
6402	1N4148	4822 130 30621
6406	1N4148	4822 130 30621
6407	1N4148	4822 130 30621
6414	1N4148	4822 130 30621
6580	TLG124 RED	4822 130 31274
6582	TLG124A GN	4822 130 32472
6603	1N4148	4822 130 30621
6604	GL8KG28 GN	4822 130 82551
6605	GL8KG28 GN	4822 130 82551
6606	BZX79C5V6	4822 130 34173
6607	1N4148	4822 130 30621
6608	BZX79C5V6	4822 130 34173
6609	1N4148	4822 130 30621
6701	1N4148	4822 130 30621
6702	1N4148	4822 130 30621
6705	1N4148	4822 130 30621
6706	1N4148	4822 130 30621
6707	1N4148	4822 130 30621
6708	1N4148	4822 130 30621
6709	1N4148	4822 130 30621
6710	1N4148	4822 130 30621
6712	1N4148	4822 130 30621
6713	HZ2-B2	4822 130 82552
6853	BZX79-B4V3	4822 130 31554
7101	CXA1238M	4822 209 73851
7102	2SC1047	4822 130 60163
7103	BC548C	4822 130 44196
7104	BC548C	4822 130 44196
7105	CD4007CM	4822 209 61116
7106	2SC1047	4822 130 60163
7107	2SA838B	4822 130 60093
7108	2SC1047	4822 130 60163
7109	2SC1047	4822 130 60163
7150	LM7000	4822 209 71331
7151	BC548C	4822 130 44196
7152	BC558B	4822 130 44197
7153	BC558B	4822 130 44197
7154	BC548C	4822 130 44196
7155	BC548C	4822 130 44196
7156	BC548C	4822 130 44196
7157	BC548C	4822 130 44196
7158	BC548C	4822 130 44196
7170	BC558B	4822 130 44197
7171	BC548C	4822 130 44196
7172	BC548C	4822 130 44196
7173	BC548C	4822 130 44196
7260	TBC548C	4822 130 44196
7301	TBC548C	4822 130 44196
7310	LM2940-10V	4822 209 63822
7313	AN7148	4822 209 70998
7315	BC337-40	4822 130 41344
7316	BC327-40	4822 130 41327
7330	AN7148	4822 209 70998
7335	TBC548C	4822 130 44196
7360	TBC548C	4822 130 44196
7401	TMP47C820F-3677	4822 209 63032
7502	TBC548C	4822 130 44196
7503	TBC548C	4822 130 44196
7505	TBC549C	4822 130 44246
7542	TBC548C	4822 130 44196
7543	TBC548C	4822 130 44196
7545	TBC549C	4822 130 44246
7604	TBC548C	4822 130 44196
7701	KA2224	4822 209 72491
7704	TBC548B	4822 130 40937
7707	BC338-40	5322 130 44779
7708	TBC558B	4822 130 44197
7710	TBC558B	4822 130 44197
7711	TBC548B	4822 130 40937
7712	TBC548C	4822 130 44196
7757	BC338-40	5322 130 44779
7801	M51567P	4822 209 72814
7810	TBC548	4822 130 40938
7811	M51564P	4822 209 72815
7812	BC327-25	4822 130 41246
7813	TDA7073/N1	4822 209 61073
7814	TDA7073/N1	4822 209 61073
7841	NJM4560D	4822 209 83274
7842	TBC558	4822 130 40941
7843	TBC548	4822 130 40938
7844	TBC548	4822 130 40938
7845	TBC548	4822 130 40938
7846	TBC548	4822 130 40938
7858	TBC548	4822 130 40938
7859	TBC548	4822 130 40938
7861	M50422P	4822 209 72813
7862	MN4264-15	4822 209 70422
7863	YM3016F	4822 209 73864
7864	NJM4560D	4822 209 83274
7871	LM2940CT-5.0	5322 209 72487

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

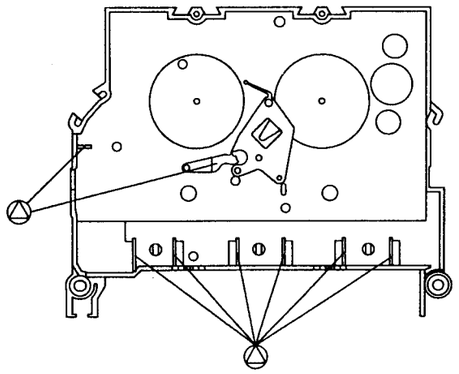
BASIC PARTS
RN/RR-TAPE DECK

40	4822 402 10037	lever pinchroller right
41	4822 528 70646	pinch roller
401	4822 691 10296	RN 0 assy
402	4822 528 20676	take up clutch assy

Only those parts of which a service code number is stated are service parts.

RN0 401

BOTTOM VIEW OF CHASSIS WINDPLATE

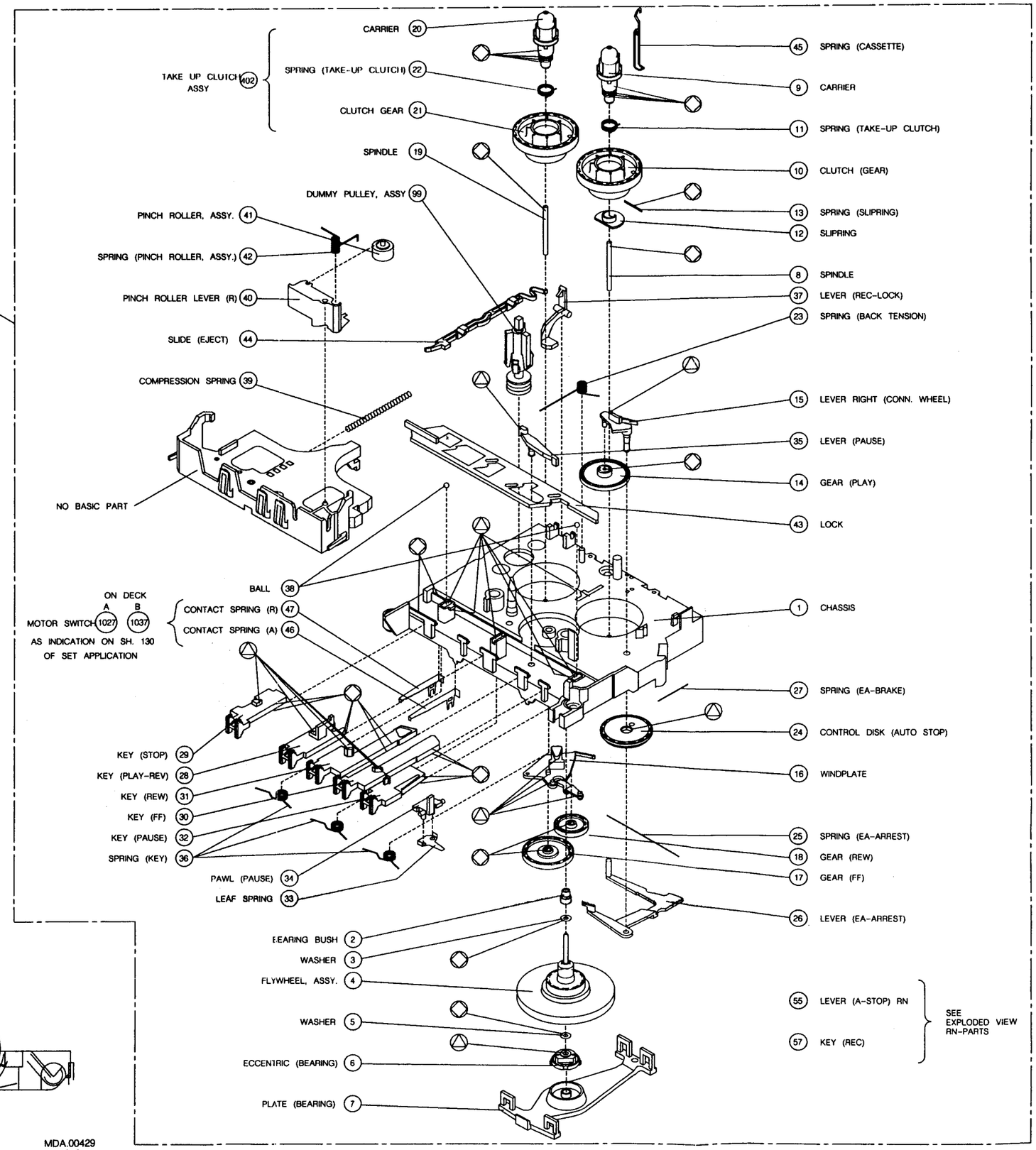


LUBRICANT (MOBIL SHC 634) terh No. 48

GREASE (SHELL ALVANIA RS) terf No. 49

HANNOSIL-RELEASE AGENT M terl No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED



– Controllo della regolazione del **trasporto del nastro e** del rullino trainonastro

Servirsi della cassetta a specchio 4822 395 30058 nel modo di riproduzione.
Se il nastro si sposta in alto ed in basso dalla parte del rullino trainonastro, registrare il rullino trainonastro in senso verticale con l'aiuto del cuscinetto del volano 5.
Il nastro deve passare ben diritto ed agevolmente tra le guide del nastro lungo il rullino trainonastro. Sono consentite piccole deviazioni dato che il loro effetto è trascurabile con l'uso di una cassetta normale.

Attenzione: in caso l'apparecchio permetta sia la registrazione che la riproduzione, a registrazione avvenuta dell'azimut della testina di registrazione/riproduzione è importante controllare il trasporto del nastro nei due sensi. Se necessario, ripetere la registrazione.
Per la **registrazione dell'azimut** della testina di registrazione/riproduzione e la **velocità di trasporto del nastro,** consultare il manuale di servizio assistenza dell'apparecchio in questione.

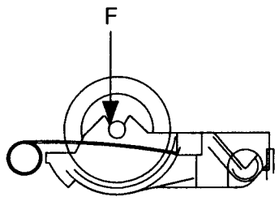


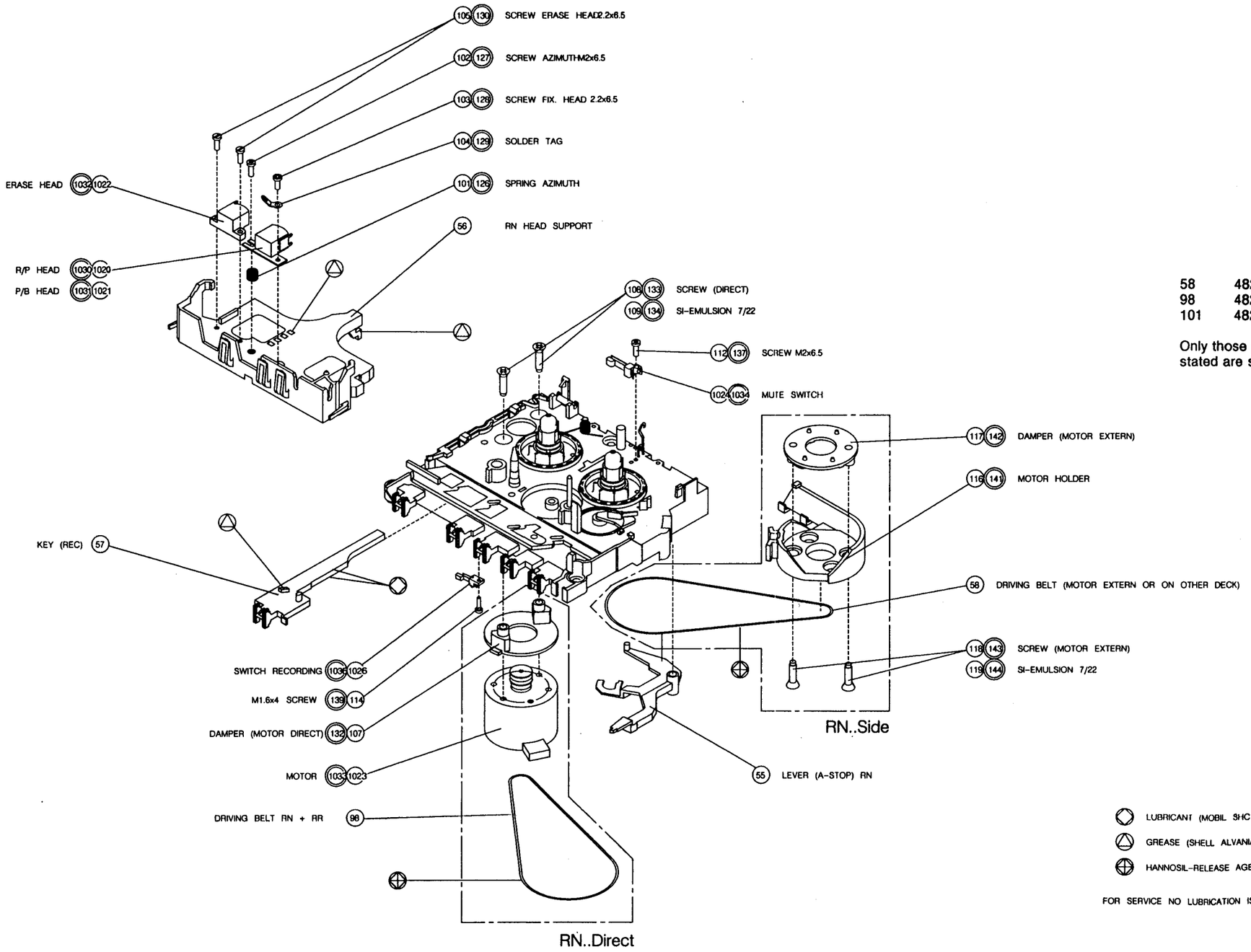
FIG 2

MDA.00429
T07/646

RN-PARTS
(additional to basic parts)

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"


105 130 SCREW ERASE HEAD 2.2x6.5
102 127 SCREW AZIMUTH M2x6.5
103 128 SCREW FIX. HEAD 2.2x6.5
104 129 SOLDER TAG
101 126 SPRING AZIMUTH
56 RN HEAD SUPPORT
ERASE HEAD 1032 1022
R/P HEAD 1030 1020
P/B HEAD 1031 1021
106 133 SCREW (DIRECT)
109 134 SI-EMULSION 7/22
112 137 SCREW M2x6.5
1024 1034 MUTE SWITCH
KEY (REC) 57
SWITCH RECORDING 1035 1026
M1.6x4 SCREW 139 114
DAMPER (MOTOR DIRECT) 132 107
MOTOR 1033 1023
DRIVING BELT RN + RR 98
55 LEVER (A-STOP) RN
RN..Direct
117 142 DAMPER (MOTOR EXTERN)
116 141 MOTOR HOLDER
58 DRIVING BELT (MOTOR EXTERN OR ON OTHER DECK)
118 143 SCREW (MOTOR EXTERN)
119 144 SI-EMULSION 7/22
RN..Side

58	4822 358 30929	driving belt RN 0S
98	4822 358 30928	driving belt RN 0D
101	4822 492 51473	spring azimuth

Only those parts of which a service code number is stated are service parts.

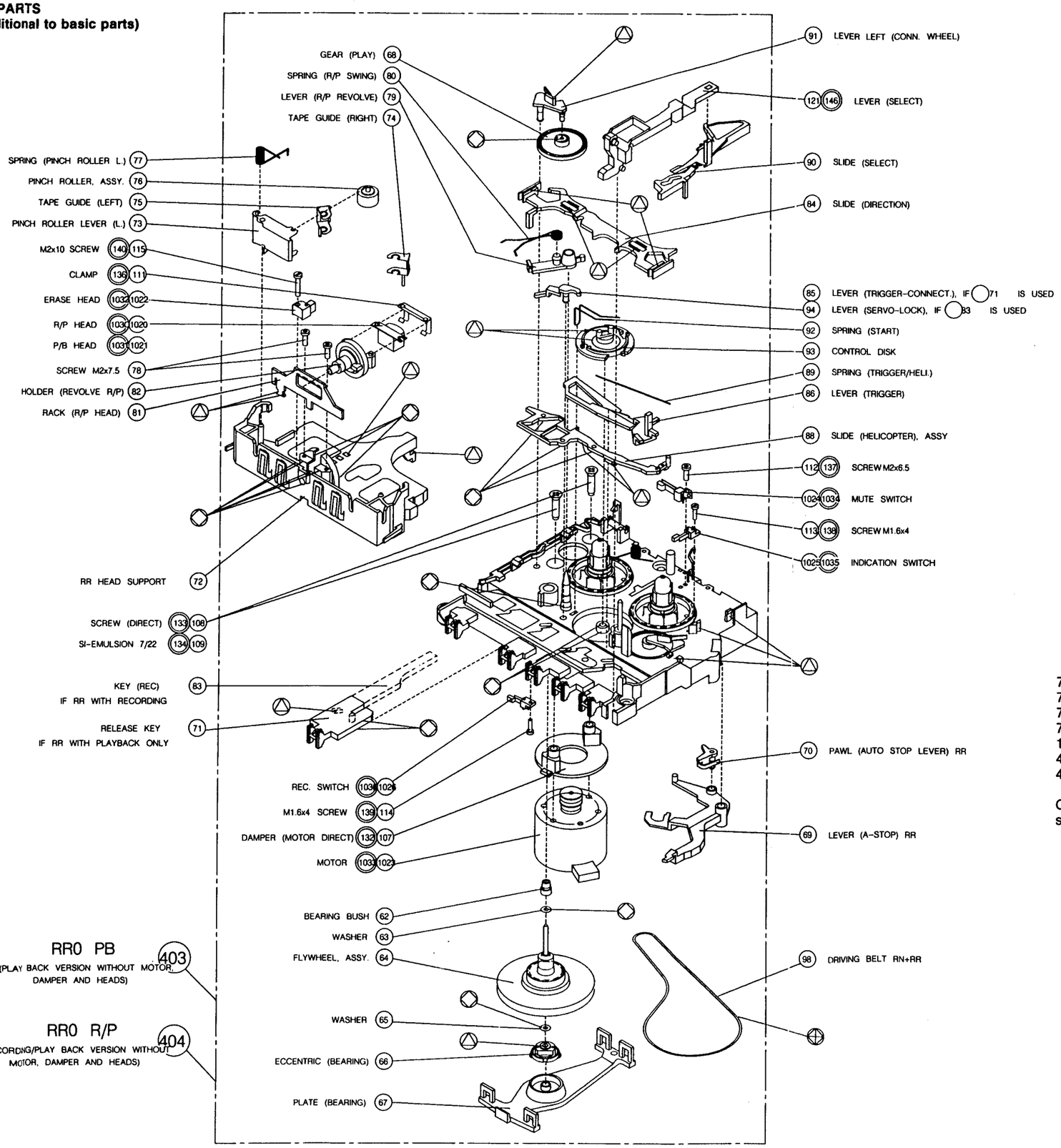
LUBRICANT (MOBIL SHC 634) term No. 48

GREASE (SHELL ALVANIA RS) term No. 49

HANNOSIL-RELEASE AGENT M term No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

RR-PARTS
(additional to basic parts)


GEAR (PLAY) 68
SPRING (R/P SWING) 80
LEVER (R/P REVOLVE) 79
TAPE GUIDE (RIGHT) 74
SPRING (PINCH ROLLER L.) 77
PINCH ROLLER, ASSY. 76
TAPE GUIDE (LEFT) 75
PINCH ROLLER LEVER (L.) 73
M2x10 SCREW 140 115
CLAMP 136 111
ERASE HEAD 1032 1022
R/P HEAD 1030 1020
P/B HEAD 1031 1021
SCREW M2x7.5 78
HOLDER (REVOLVE R/P) 82
RACK (R/P HEAD) 81
RR HEAD SUPPORT 72
SCREW (DIRECT) 133 108
SI-EMULSION 7/22 134 109
KEY (REC) 83
IF RR WITH RECORDING
RELEASE KEY 71
IF RR WITH PLAYBACK ONLY
REC. SWITCH 1033 1023
M1.6x4 SCREW 139 114
DAMPER (MOTOR DIRECT) 132 107
MOTOR 1033 1023
BEARING BUSH 62
WASHER 63
FLYWHEEL, ASSY. 64
WASHER 65
ECCENTRIC (BEARING) 66
PLATE (BEARING) 67
RR0 PB
(PLAY BACK VERSION WITHOUT MOTOR, DAMPER AND HEADS) 403
RR0 R/P
(RECORDING/PLAY BACK VERSION WITHOUT MOTOR, DAMPER AND HEADS) 404
91 LEVER LEFT (CONN. WHEEL)
121 146 LEVER (SELECT)
90 SLIDE (SELECT)
84 SLIDE (DIRECTION)
85 LEVER (TRIGGER-CONNECT.), IF 71 IS USED
94 LEVER (SERVO-LOCK), IF 83 IS USED
92 SPRING (START)
93 CONTROL DISK
89 SPRING (TRIGGER/HELI.)
86 LEVER (TRIGGER)
88 SLIDE (HELICOPTER), ASSY
112 137 SCREW M2x6.5
1024 1034 MUTE SWITCH
113 138 SCREW M1.6x4
1025 1035 INDICATION SWITCH
70 PAWL (AUTO STOP LEVER) RR
69 LEVER (A-STOP) RR
98 DRIVING BELT RN+RR

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"

73	4822 402 10038	lever pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
76	4822 528 70646	pinch roller
111	4822 492 70393	spring head clamping
403	4822 691 10294	RR0 PB assy
404	4822 691 10295	RR0 R/P assy

Only those parts of which a service code number is stated are service parts.

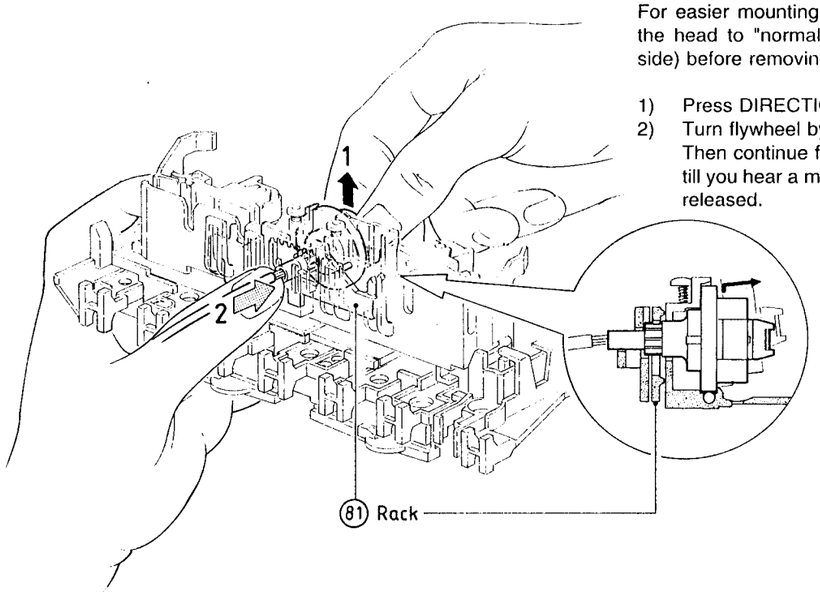
LUBRICANT (MOBIL SHC 634) tem No. 48

GREASE (SHELL ALVANIA RS) tem No. 49

HANNOSIL-RELEASE AGENT M tem No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

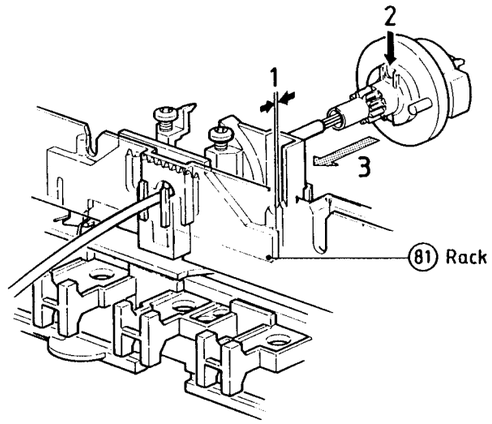
REMOVAL OF ROTATION HEAD



For easier mounting of the rotation head afterwards, turn the head to "normal direction" (tape guiding on the right side) before removing:

1) Press DIRECTION - key once.
2) Turn flywheel by hand as long as head turns around. Then continue for about half a rotation of the flywheel till you hear a mechanical click. Now the mechanism is released.

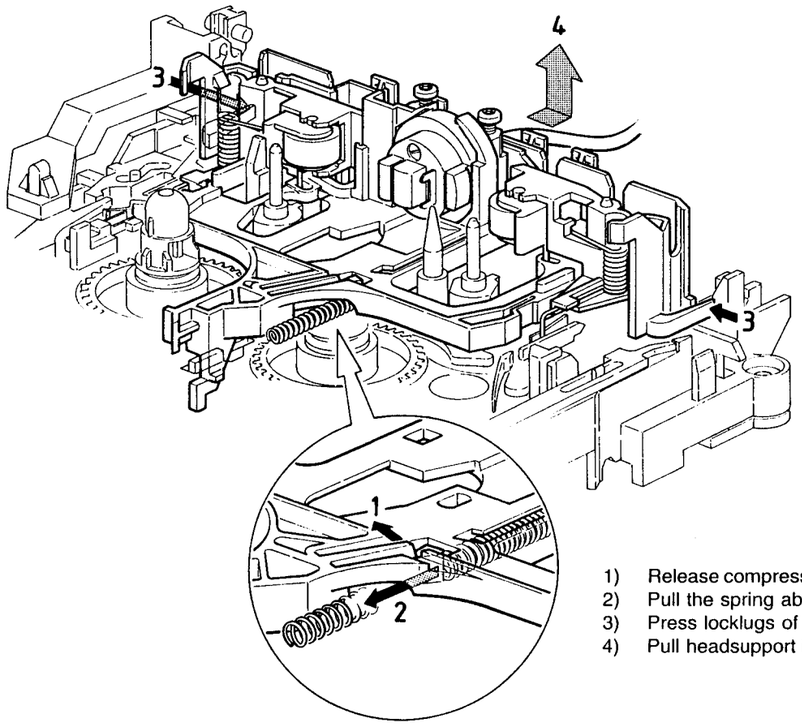
MOUNTING OF ROTATION HEAD



Rack pos.81 has to be aligned before mounting the rotation head:

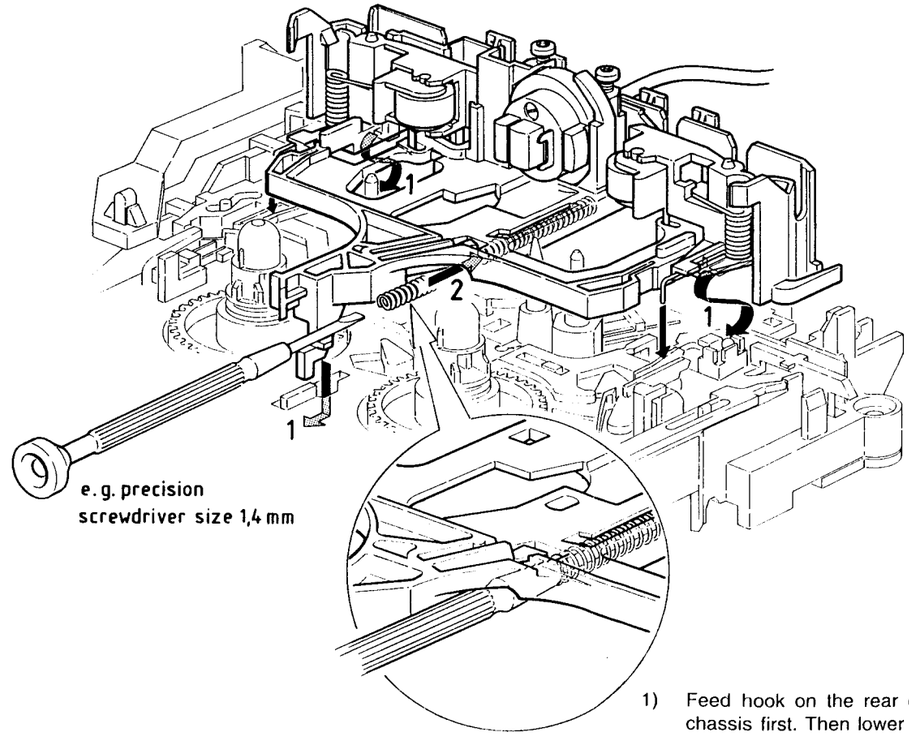
1) Press DIRECTION - key once.
   Turn flywheel by hand as long as the alignment pin of rack pos.81 is in line with the alignment marking on the headsupport --> see sketch.
2) Hold the head in normal (horizontal) position - marking on the head is on top.
3) Snap head into headsupport.
   remark: If you follow the above instruction the teeth of the gear will fit together.
4) Change the direction as described under "removal of rotation head" and check if the rotation head turns to the correct position.
   If the head is not in horizontal position repeat and take care of exact alignment of rack pos.81 and horizontal position of the head while mounting.

REMOVAL OF HEADSUPPORT



1) Release compression spring by pressing locklug aside.
2) Pull the spring about half of the spring length out.
3) Press locklugs of the headsupport aside.
4) Pull headsupport in direction to the keys and lift it.

MOUNTING OF HEADSUPPORT

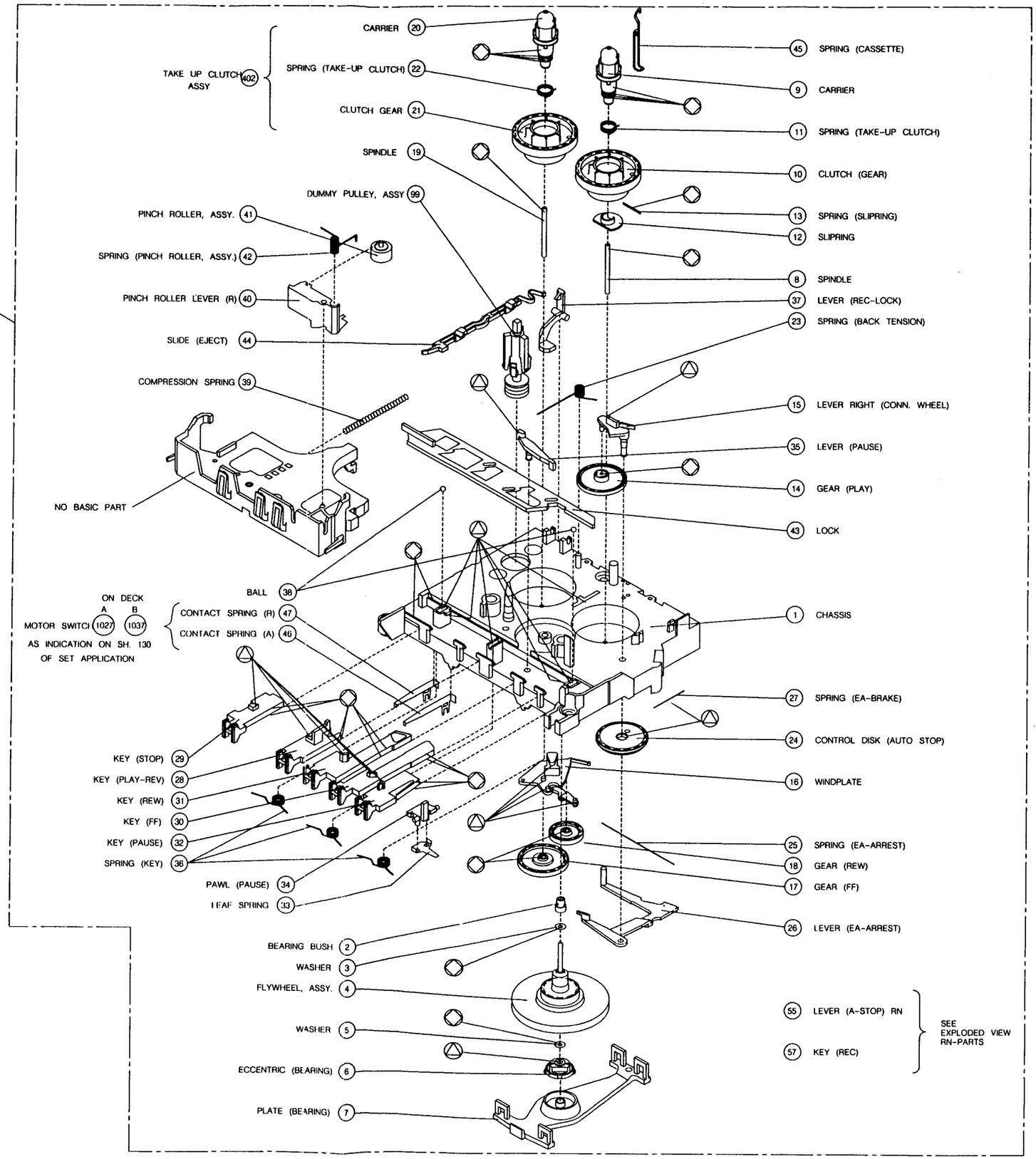


1) Feed hook on the rear of the headsupport into the chassis first. Then lower the front part to the chassis and press headsupport towards back until locklugs snap in.
   Attention: In case of a reverse deck take care of fitting the pinch roller pressing springs correctly into the guiding slots of the chassis.

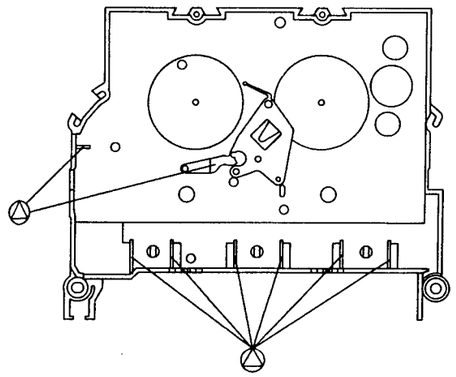
2) Use a little screwdriver as a guiding and compress compression spring until locklug arrests.

BASIC PARTS
RN/RR-TAPE DECK

RN0 (401)



BOTTOM VIEW OF CHASSIS WINDPLATE



◇ LUBRICANT (MOBIL SHC 634) item No. 48

△ GREASE (SHELL ALVANIA RS) item No. 49

◈ HANNOSIL-RELEASE AGENT M item No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

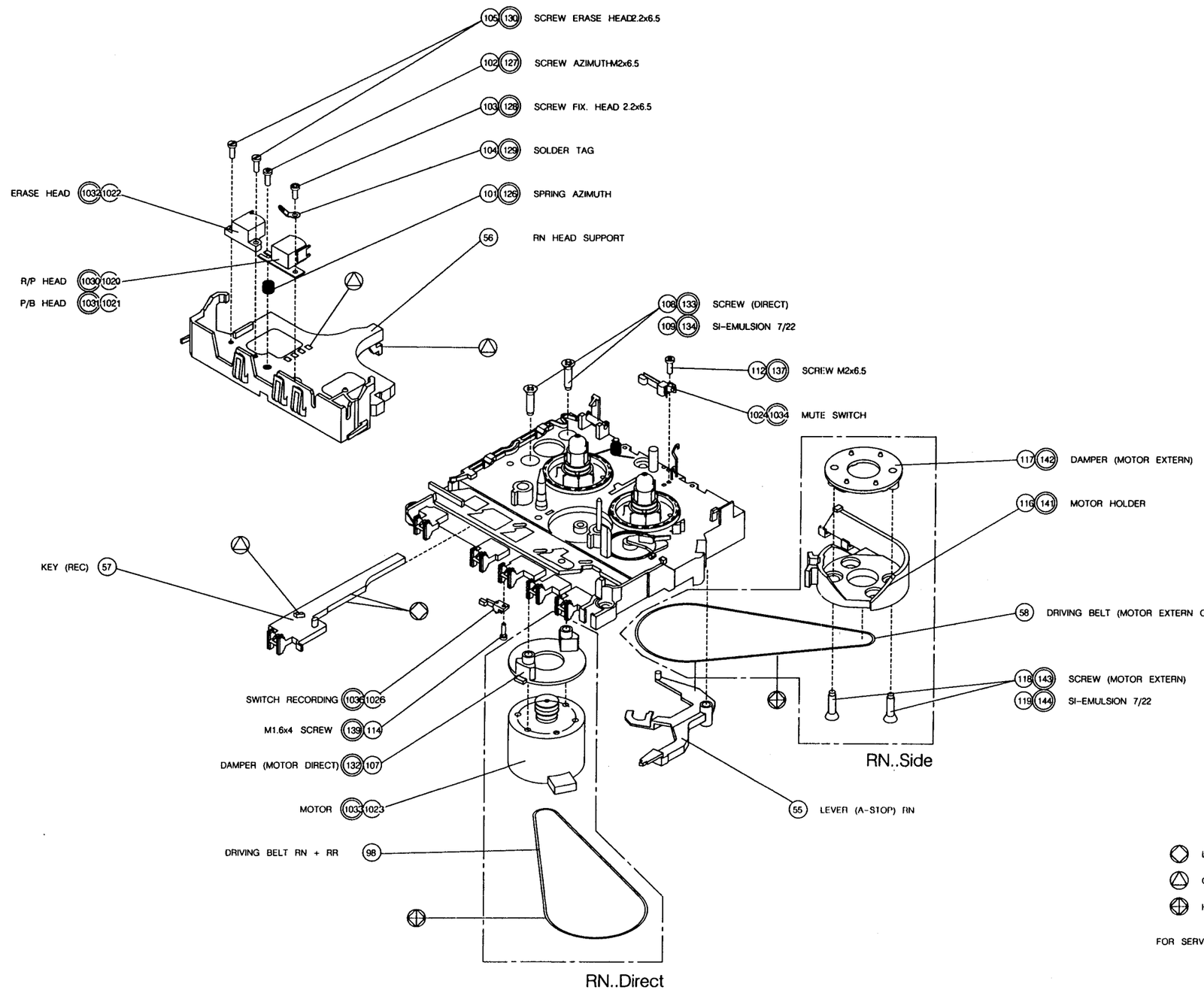
7	4822 520 10718	plate bearing
40	4822 402 10037	lever pinchroller right
41	4822 528 70646	pinch roller
43	4822 404 10853	slide, key locking
401	4822 691 10296	RN 0 assy
402	4822 528 20676	take up clutch assy

Only those parts of which a service code number is stated are service parts.

RN-PARTS
(additional to basic parts)

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"


105 130 SCREW ERASE HEAD2.2x6.5
102 127 SCREW AZIMUTH-M2x6.5
103 128 SCREW FIX. HEAD 2.2x6.5
104 129 SOLDER TAG
101 126 SPRING AZIMUTH
56 RN HEAD SUPPORT
ERASE HEAD 1033 1022
R/P HEAD 1030 1020
P/B HEAD 1031 1021
106 133 SCREW (DIRECT)
109 134 SI-EMULSION 7/22
112 137 SCREW M2x6.5
1024 1034 MUTE SWITCH
KEY (REC) 57
SWITCH RECORDING 1035 1026
M1.6x4 SCREW 139 114
DAMPER (MOTOR DIRECT) 132 107
MOTOR 1033 1023
DRIVING BELT RN + RR 98
RN..Direct
117 142 DAMPER (MOTOR EXTERN)
116 141 MOTOR HOLDER
58 DRIVING BELT (MOTOR EXTERN OR ON OTHER DECK)
118 143 SCREW (MOTOR EXTERN)
119 144 SI-EMULSION 7/22
RN..Side
55 LEVER (A-STOP) RN

58	4822 358 30929	driving belt RN 0S
98	4822 358 30928	driving belt RN 0D
101	4822 492 51473	spring azimuth

Only those parts of which a service code number is stated are service parts.

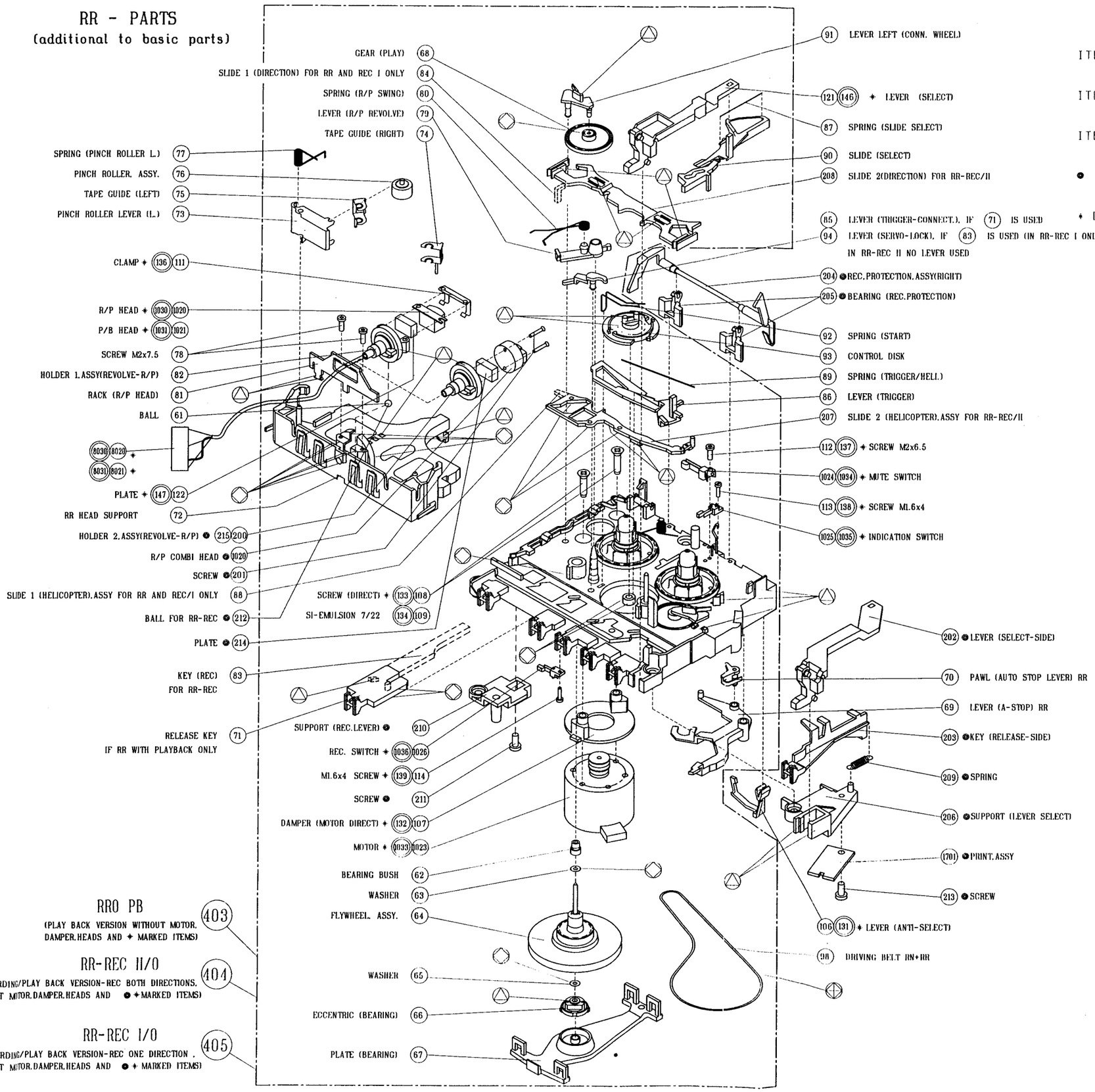
◇ LUBRICANT (MOBIL SHC 634) tert No. 48

△ GREASE (SHELL ALVANIA RS) tert No. 49

⊕ HANNOSIL-RELEASE AGENT M tert No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

RR - PARTS
(additional to basic parts)


GEAR (PLAY) 68
SLIDE 1 (DIRECTION) FOR RR AND REC I ONLY 84
SPRING (R/P SWING) 80
LEVER (R/P REVOLVE) 79
TAPE GUIDE (RIGHT) 74
SPRING (PINCH ROLLER L.) 77
PINCH ROLLER. ASSY. 76
TAPE GUIDE (LEFT) 75
PINCH ROLLER LEVER (L.) 73
CLAMP * 136 111
R/P HEAD * 1030 1020
P/B HEAD * 1031 1021
SCREW M2x7.5 78
HOLDER 1.ASSY(REVOLVE-R/P) 82
RACK (R/P HEAD) 81
BALL 61
8030 8020 *
8031 8021 *
PLATE * 147 122
RR HEAD SUPPORT 72
HOLDER 2.ASSY(REVOLVE-R/P) ● 215 200
R/P COMBI HEAD ● 1020
SCREW ● 201
SLIDE 1 (HELICOPTER).ASSY FOR RR AND REC/I ONLY 88
BALL FOR RR-REC ● 212
PLATE ● 214
KEY (REC) FOR RR-REC 83
RELEASE KEY IF RR WITH PLAYBACK ONLY 71
SCREW (DIRECT) * 133 108
SI-EMULSION 7/22 134 109
SUPPORT (REC.LEVER) ● 210
REC. SWITCH * 1036 1026
M1.6x4 SCREW * 139 114
SCREW ● 211
DAMPER (MOTOR DIRECT) * 132 107
MOTOR * 1033 1023
BEARING BUSH 62
WASHER 63
FLYWHEEL. ASSY. 64
WASHER 65
ECCENTRIC (BEARING) 66
PLATE (BEARING) 67
91 LEVER LEFT (CONN. WHEEL)
121 146 * LEVER (SELECT)
87 SPRING (SLIDE SELECT)
90 SLIDE (SELECT)
208 SLIDE 2(DIRECTION) FOR RR-REC/II
85 LEVER (TRIGGER-CONNECT.). IF 71 IS USED
94 LEVER (SERVO-LOCK). IF 83 IS USED (IN RR-REC I ONLY)
IN RR-REC II NO LEVER USED
204 ● REC. PROTECTION. ASSY(RIGHT)
205 ● BEARING (REC.PROTECTION)
92 SPRING (START)
93 CONTROL DISK
89 SPRING (TRIGGER/HELL.)
86 LEVER (TRIGGER)
207 SLIDE 2 (HELICOPTER).ASSY FOR RR-REC/II
112 137 * SCREW M2x6.5
1024 1034 * MUTE SWITCH
113 138 * SCREW M1.6x4
1025 1035 * INDICATION SWITCH
202 ● LEVER (SELECT-SIDE)
70 PAWL (AUTO STOP LEVER) RR
69 LEVER (A-STOP) RR
203 ● KEY (RELEASE-SIDE)
209 ● SPRING
206 ● SUPPORT (LEVER SELECT)
701 ● PRINT. ASSY
213 ● SCREW
106 131 * LEVER (ANTI-SELECT)
98 DRIVING BELT RR+RR

RR0 PB 403
(PLAY BACK VERSION WITHOUT MOTOR. DAMPER. HEADS AND * MARKED ITEMS)

RR-REC II/0 404
(RECORDING/PLAY BACK VERSION-REC BOTH DIRECTIONS. WITHOUT MOTOR. DAMPER. HEADS AND ● * MARKED ITEMS)

RR-REC I/0 405
(RECORDING/PLAY BACK VERSION-REC ONE DIRECTION . WITHOUT MOTOR. DAMPER. HEADS AND ● * MARKED ITEMS)

EXPLANATIONS FOR VERSIONS:

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"

ITEM (200) TO (215) ONLY USED IN REC. VERSION

● NOT IN RR-REC I/0 AND RR-REC II/0

* DEPENDENT ON VERSION, THEREFORE NOT IN RR 0 PB AND RR-REC I/0 AND RR-REC II/0

67	4822 520 10718	plate bearing
73	4822 402 10038	lever pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
76	4822 528 70646	pinch roller
106	4822 403 70385	lever
111	4822 492 70393	spring head clamping
403	4822 691 10294	RR0 PB assy
404	4822 691 20665	RR REC II /0 assy
405	4822 691 10295	RR REC I /0 assy

Only those parts of which a service code number is stated are service parts.

LUBRICANT (MOBIL SHC 634) Item No. 48

GREASE (SHELL ALVANIA RS) Item No. 49

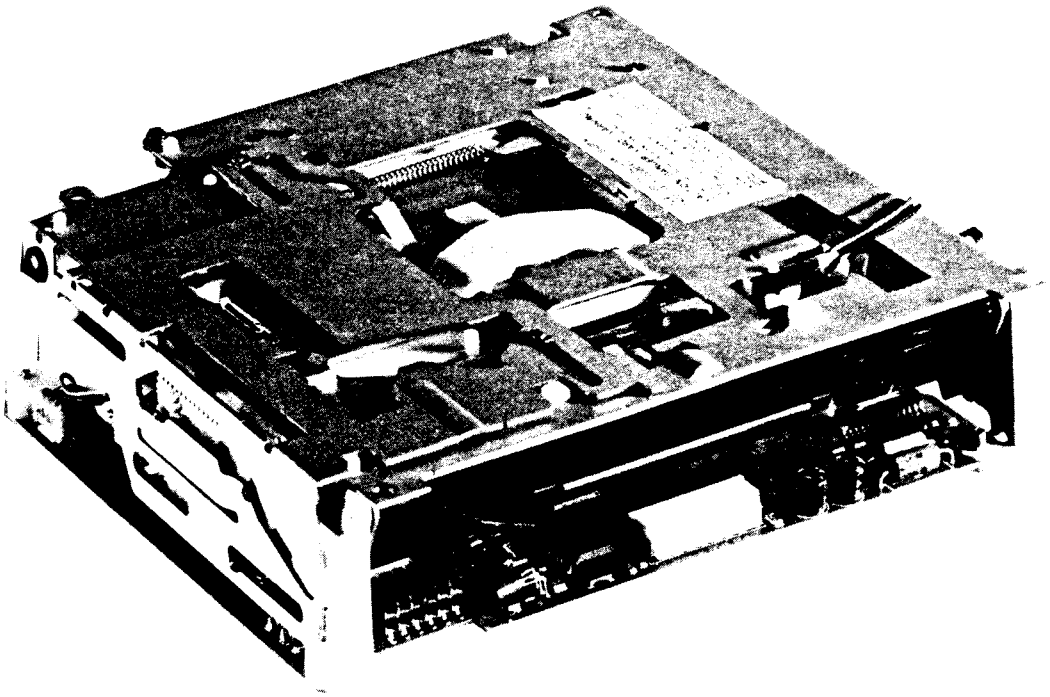
HANNOSIL-RELEASE AGENT M Item No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

Service

Service Manual

12 V



CLASS 1
LASER PRODUCT

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PHILIPS

PHILIPS

page . . . Contents

2 . . . . . Contents / Specification
3 . . . . . Wiring diagram
4 . . . . . Measurments
5 . . . . . Oszillograms
6 . . . . . PCB - Layout
7 . . . . . Decoder
8 . . . . . DA-converter
9 . . . . . Discmotor control / Loadingmotor control
10 . . . . Power supply
11 . . . . Main control unit
12 . . . . Exploded view / Lubricating instructions
13 . . . . Partslist
14 . . . . Partslist
15 . . . . Partslist

Specification

Operating voltage:	10 V - 16 V
Operating temperature:	-15°C - +70°C
Mounting Angle:	-10°C - +20°C
Playability:	scratches - 900 µm
	blackdots - 800 µm
Accesstime:	max. 2sec (inner to outertrack)
Load/eject time:	ca 4sec

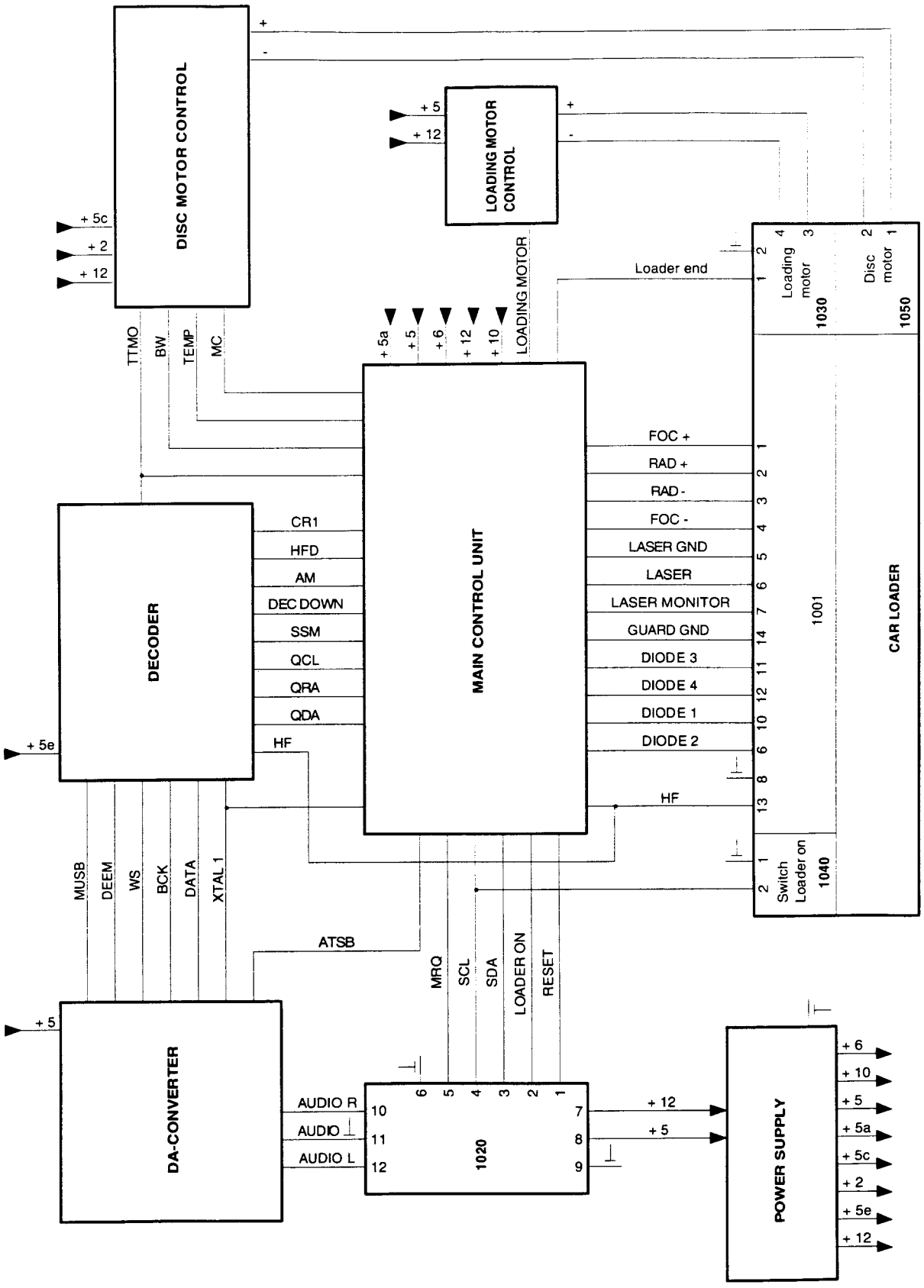
Note: Switch off power supply before connect and disconnect CDM-9 module and set (danger of shortcircuit)!

Note: Use the coded plugs and sockets to build the needed extension cables.

Note: The chassis of CDM-9 is not grounded when seperated from the set.

Note: Only PLAY but no LOAD and EJECT can be realized in upside-down position.

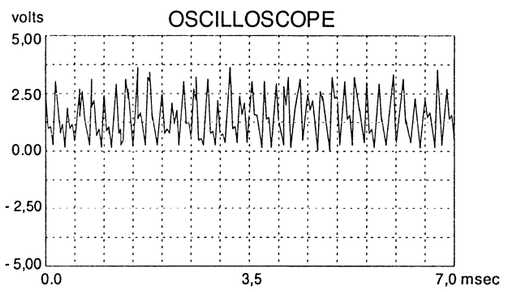
Note: For handling of Flat Pack IC's see Service Information **A 86 - 1000** dated 1986-07-01.


DISC MOTOR CONTROL
LOADING MOTOR CONTROL
MAIN CONTROL UNIT
DECODER
DA-CONVERTER
POWER SUPPLY
CAR LOADER
1001
1020
1030
1040
1050
Loading motor
Disc motor
Switch Loader on
Loader end
LOADING MOTOR
TTMO
BW
TEMP
MC
CR1
HFD
AM
DEC DOWN
SSM
QCL
QRA
QDA
HF
FOC +
RAD +
RAD -
FOC -
LASER GND
LASER
LASER MONITOR
GUARD GND
DIODE 3
DIODE 4
DIODE 1
DIODE 2
MUSB
DEEM
WS
BCK
DATA
XTAL 1
ATSB
MRQ
SCL
SDA
LOADER ON
RESET
AUDIO R
AUDIO
AUDIO L
+ 5c
+ 2
+ 12
+ 5
+ 5a
+ 6
+ 10
+ 5e

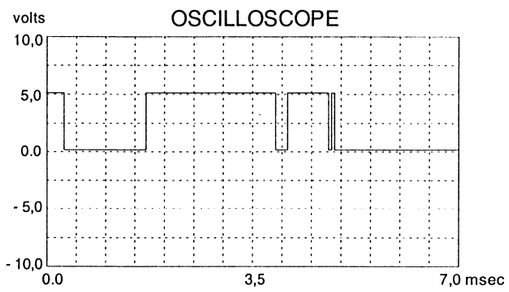
all values measured in PLAY (P)
DC - GND

+ 2	= 2,5 V
+ 5	= 5,0 V
+ 5a	= 4,7 V
+ 5c	= 5,2 V
+ 5e	= 5,0 V
+ 6	= 6,0 V
+10	= 8,4 V
+12	= 12,0 V
AUDIO-LEVEL (L+R)	= 0,0 V
MRQ	= see oscillogram MRQ
SCL	= see oscillogram SCL
SDA	= see oscillogram SDA
LOADER ON	= 5,0 V
RESET	= 30 mV
ATSB	= 5,0 V
MUSB	= 5,0 V (0,0 V MUTE)
DEEM	= 19 mV
WS	= see oscillogram WS
BCK	= 2,5 V
DATA	= see oscillogram DATA
XTAL1	= 1,5 V
HF	= 3,1 V (Pos.1001, Pin 13)
QDA	= see oscillogram QDA
QRA	= see oscillogram QRA
QCL	= see oscillogram QCLSM
SSM	= see oscillogram SSM
DEC. DOWN	= 0,0 V
AM	= 5,0 V
HFD	= 3,9 V
CR1	= 5,0 V
MC	= see oscillogram MC
TEMP	= 3,9 V
BW	= 5,0 V
TTMO	= 5,0 V
DISC MOTOR +	= 5,4 V
DISC MOTOR -	= 4,8 V
LOADING MOTOR	= 3,4 V (5,0 V load, 0,0 V eject)
LOADING MOTOR +	= 3,7 V (0,9 V load, 6,3 V eject)
LOADING MOTOR -	= 3,7 V (6,3 V load, 0,9 V eject)
LOADER END	= 0,0 V (5,0 V CD OFF)
FOC +	= 2,4 V
FOC -	= 2,6 V
RAD +	= see oscillogram RAD
RAD -	= see oscillogram RAD
LASER GND	= 0,0 V
LASER	= 2,0 V
LASER MONITOR	= 0,2 V
GUARD GND	= 0,0 V
DIODE 1	= 1,3 V
DIODE 2	= 1,3 V
DIODE 3	= 1,3 V
DIODE 4	= 1,3 V

DATA



MRQ



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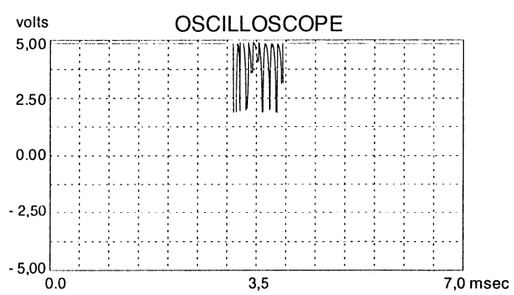
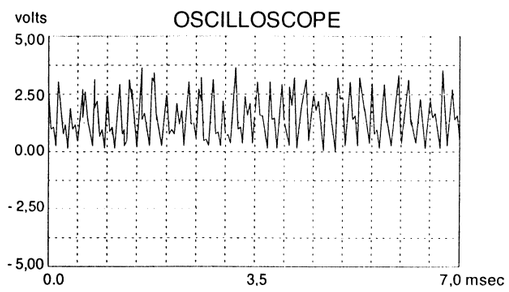
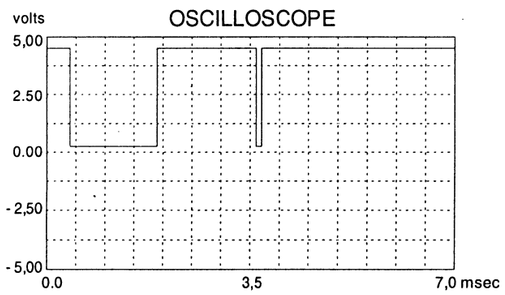


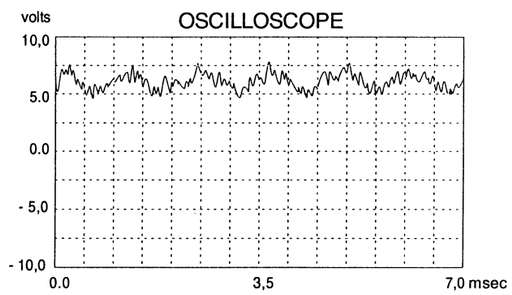
DATA



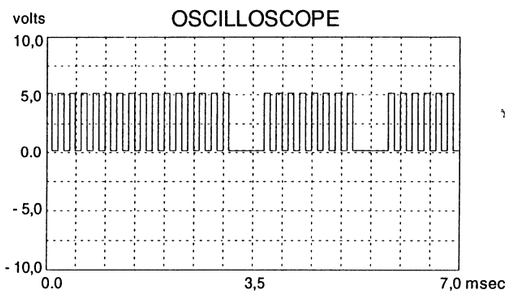
QRA



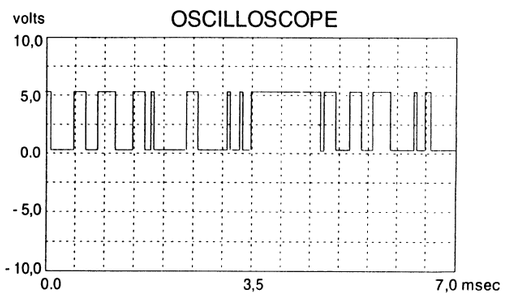
RAD



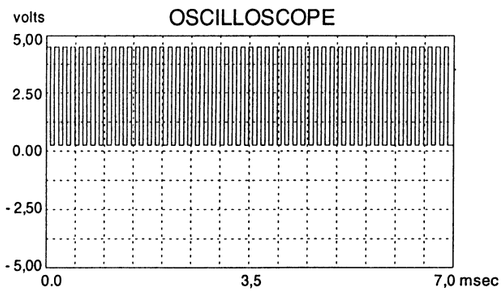
SCL



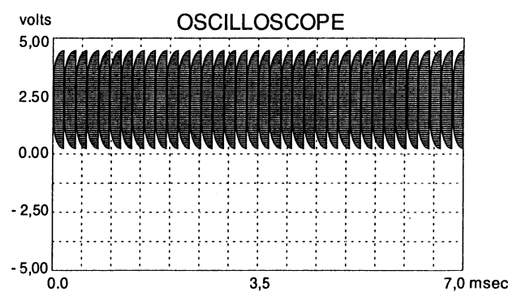
SDA



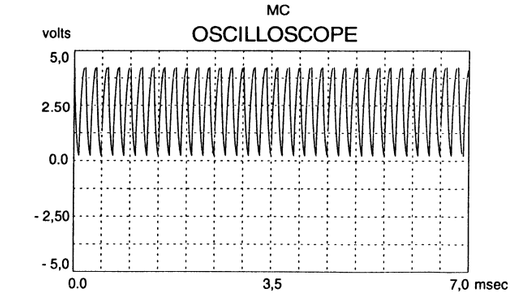
SSM

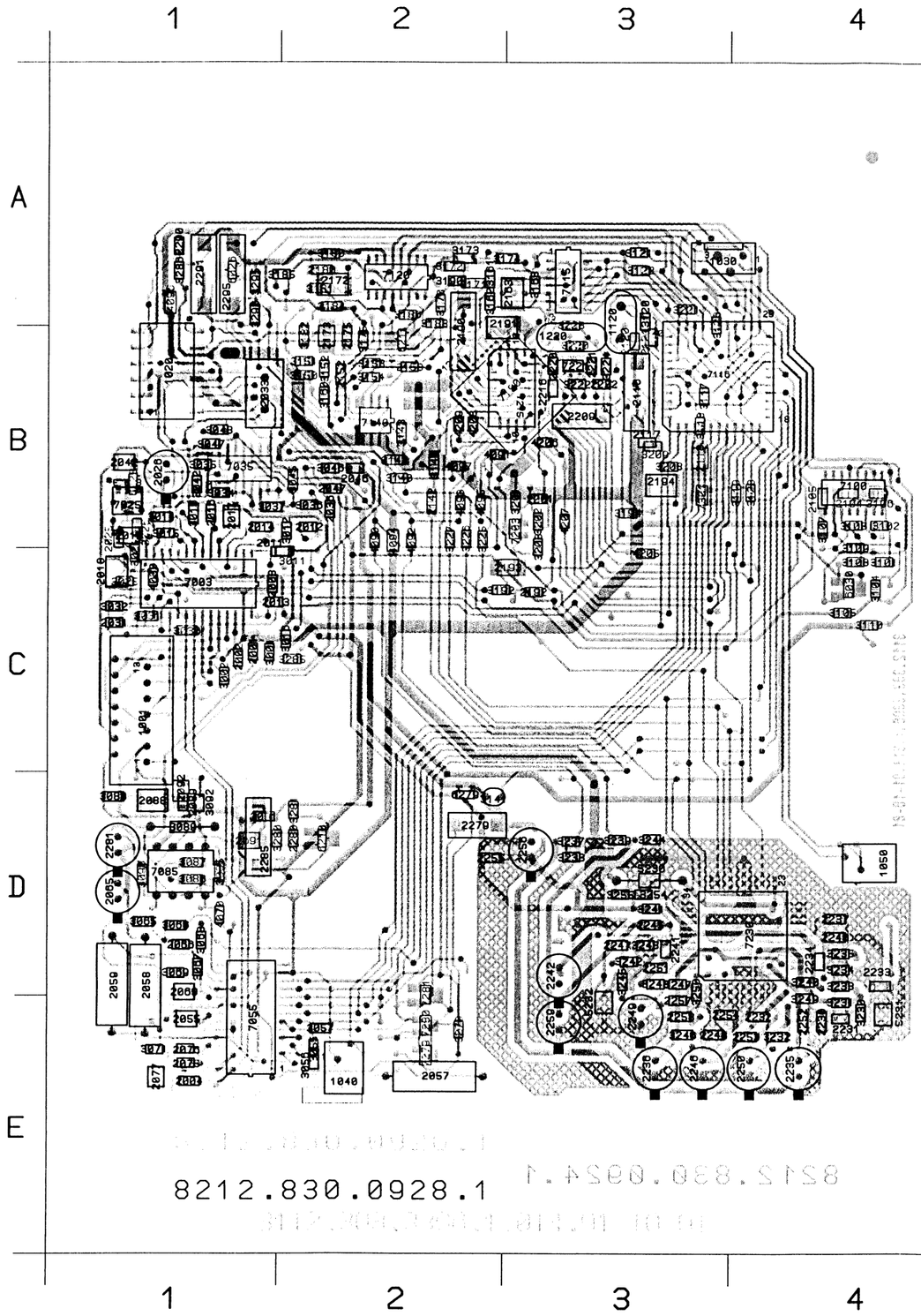


WS

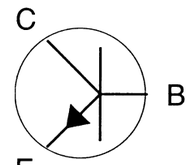


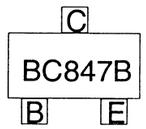
MC

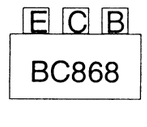


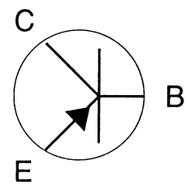


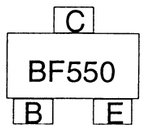
2001 C 1	3208 B 3	2254 E 4	3034 B 1
2002 C 1	3209 B 3	2042 B 1	da08 D 3
2025 B 1	3220 B 3	2255 D 2	3035 B 1
2091 D 1	3221 A 3	2046 B 2	da09 D 2
2092 D 1	3223 A 3	2256 D 3	3036 B 2
2104 B 4	3225 B 2	2047 B 2	da10 D 2
2105 B 4	3226 B 2	2257 E 3	3037 B 1
2118 B 3	3227 B 2	2055 E 1	da11 D 3
2120 B 3	3270 E 2	2258 E 3	3042 B 1
2121 B 3	3280 D 1	2057 E 2	da12 D 3
2142 B 2	3281 D 2	2259 E 3	3046 B 2
2152 B 2	3285 C 2	2058 E 1	da13 D 4
2153 B 2	4033 C 1	3230 E 4	3047 B 1
2173 B 2	4070 D 1	2059 E 1	3048 B 1
2175 B 2	4090 B 2	3231 E 4	3056 E 2
2180 A 2	4092 B 2	2065 D 1	3057 E 2
2192 C 3	4093 B 2	3232 E 4	3065 D 1
2193 C 2	4094 B 2	2066 D 1	3066 D 1
2201 B 3	4095 B 2	3233 D 4	3067 D 1
2280 D 2	4096 A 1	2069 D 1	3068 D 1
3001 C 1	4097 B 2	3234 D 4	3069 D 1
3002 C 1	4205 C 3	2075 E 1	3071 E 1
3011 C 1	4207 B 3	3235 D 4	3088 D 1
3016 C 2	6025 B 1	2076 E 1	3089 D 1
3024 B 1	6026 A 1	3237 D 3	3092 D 1
3025 C 1	6030 C 4	2077 E 1	3120 B 3
3028 B 1	6210 D 2	3238 D 3	3121 A 3
3030 C 1	6211 B 2	2088 D 1	3141 D 2
3031 C 1	7035 B 1	3239 D 3	3161 A 2
3045 B 2	7140 B 2	2089 D 1	3162 A 2
3055 E 2	7190 B 2	3240 D 4	3163 A 3
3085 D 1	7203 B 3	2116 B 3	3173 A 2
3086 D 1	7279 E 2	3241 D 3	3174 A 3
3087 D 1	7280 E 2	2117 B 3	3185 A 2
3090 D 1	7281 E 2	3242 D 3	3190 A 2
3091 D 1	7301 B 3	2163 A 3	3222 B 3
3101 C 4	1001 C 1	3243 D 3	3224 B 3
3102 B 4	2230 E 4	2172 A 2	3286 A 1
3103 B 4	1020 B 1	3244 D 3	3295 A 1
3104 C 4	2231 E 4	2190 B 2	3296 A 1
3105 C 4	1030 A 4	3245 D 3	4091 B 2
3106 B 4	2232 E 4	2191 B 2	4206 B 3
3107 B 4	1040 E 2	3246 E 3	4208 B 2
3108 C 4	2233 D 4	2194 B 3	4209 B 2
3109 B 4	1050 D 4	3247 D 3	6279 D 2
3110 C 4	2234 D 4	2200 B 3	7003 C 1
3117 B 3	1120 B 3	3248 D 3	7025 B 1
3118 B 3	2235 E 4	2216 B 3	7055 E 2
3119 B 4	1220 B 3	3249 E 4	7085 D 1
3122 A 3	2236 E 3	2220 B 3	7100 B 4
3123 B 4	2003 C 1	3250 E 3	7115 A 3
3126 B 3	2237 D 4	2221 B 3	7116 B 3
3140 B 2	2004 E 1	3254 D 3	7120 A 2
3142 B 2	2240 D 4	2222 B 3	7215 B 3
3143 B 2	2010 B 1	3255 D 3	7221 B 3
3144 B 2	2241 D 3	2279 D 2	da01 D 3
3150 B 2	2011 C 1	5230 D 3	da02 D 4
3151 B 2	2242 D 3	2281 D 1	da03 D 3
3152 B 2	2012 B 2	5231 E 4	da04 D 3
3153 B 2	2245 D 3	2285 D 1	da05 D 3
3154 B 2	2013 C 1	5232 E 3	da06 D 3
3160 B 2	2246 E 3	2290 A 1	da07 D 3
3170 A 2	2014 B 1	7230 D 3	da08 D 3
3171 A 2	2247 D 3	2291 A 1	da09 D 2
3172 A 2	2016 B 1	da01 D 3	da10 D 2
3175 B 2	2248 E 3	2295 A 1	da11 D 3
3180 A 2	2017 B 1	da02 D 4	da12 D 3
3181 A 2	2249 E 3	3010 B 1	da13 D 4
3182 B 2	2018 C 1	da03 D 3	
3183 A 2	2250 E 4	3012 B 2	
3184 A 2	2026 B 1	da04 D 3	
3186 A 2	2251 D 3	3014 B 1	
3192 C 2	2031 C 1	da05 D 3	
3194 B 3	2252 E 4	3015 B 1	
3201 B 3	2033 B 1	da06 D 3	
3202 B 3	2253 E 4	3032 C 1	
3203 C 3	2036 B 2	da07 D 3	

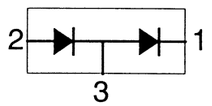


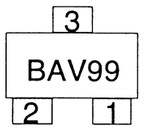


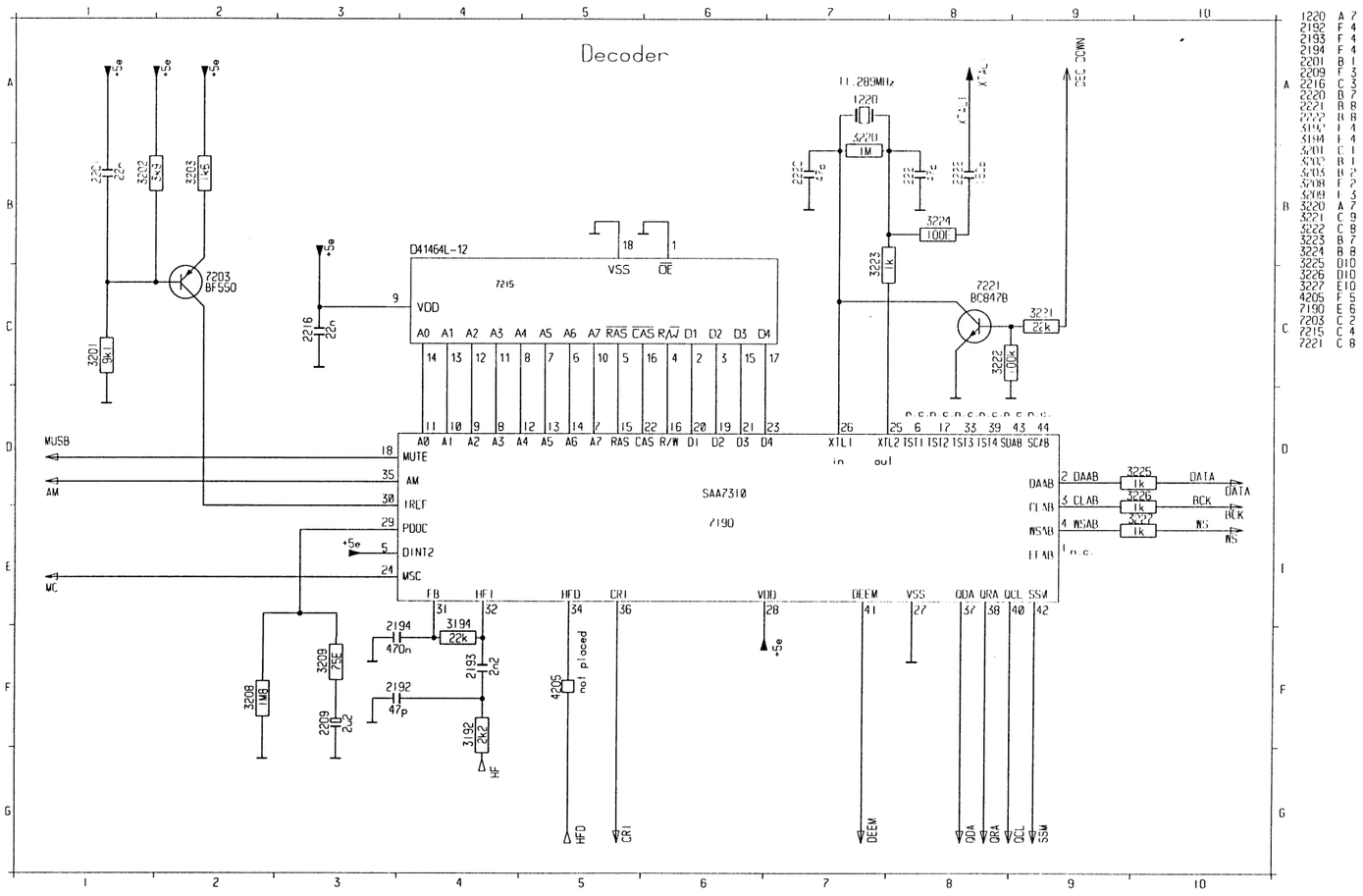












POS. 7215 D 41464L-12

1: GND	10: data
2: data	11: data
3: data	12: data
4: data	13: data
5: 0,8 V (P)	14: data
6: data	15: data
7: data	16: 2,5 V (P)
8: data	17: data

POS. 7203 BF 550

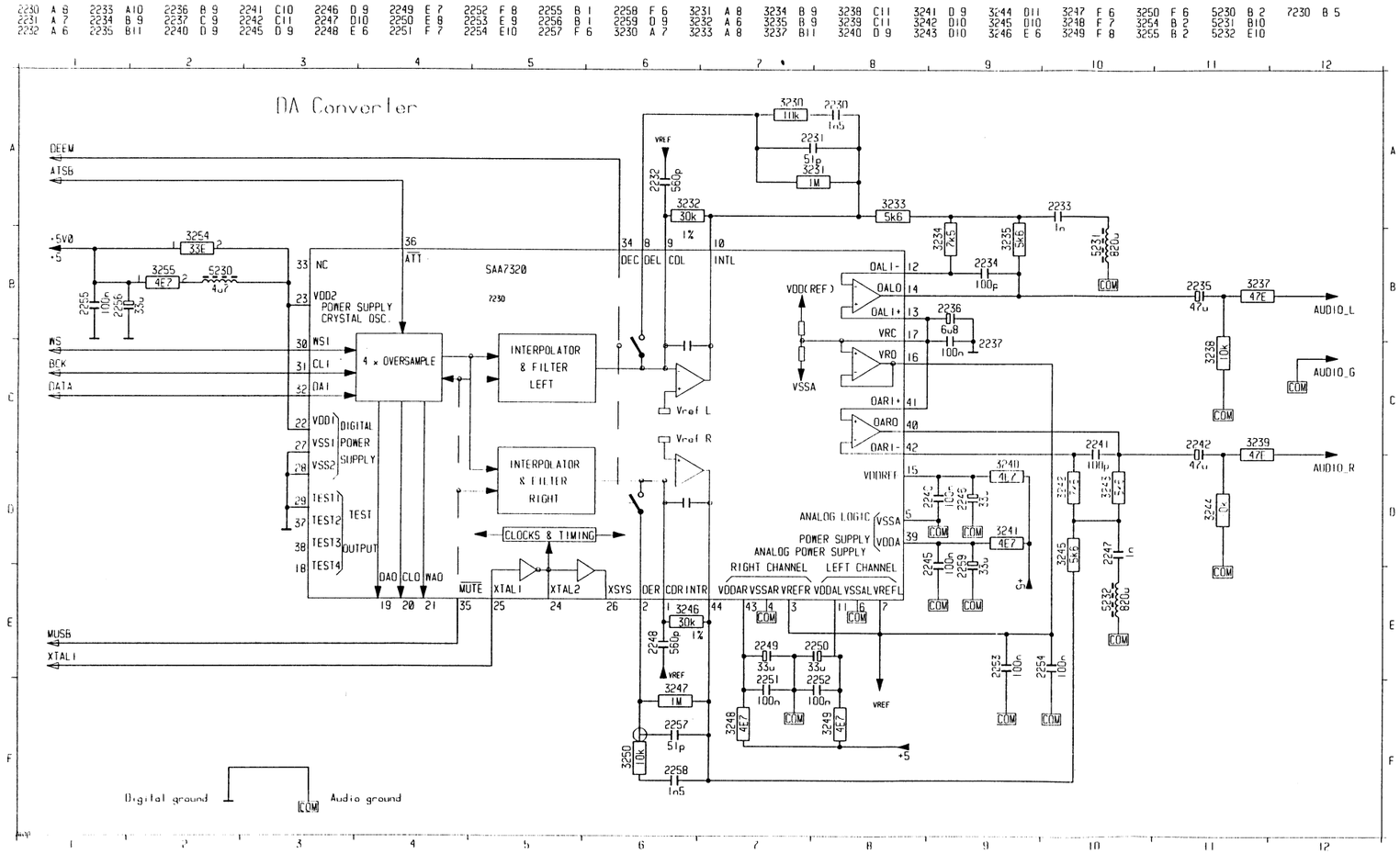
B: 3,2 V (P,S,O)
C: 1,5 V (P,S,O)
E: 4,0 V (P,S,O)

POS. 7221 BC 847B

B: 0,0 V (P) / 0,7 V (S,O)
C: 2,0 V (P) / 0,0 V (S,O)
E: GND

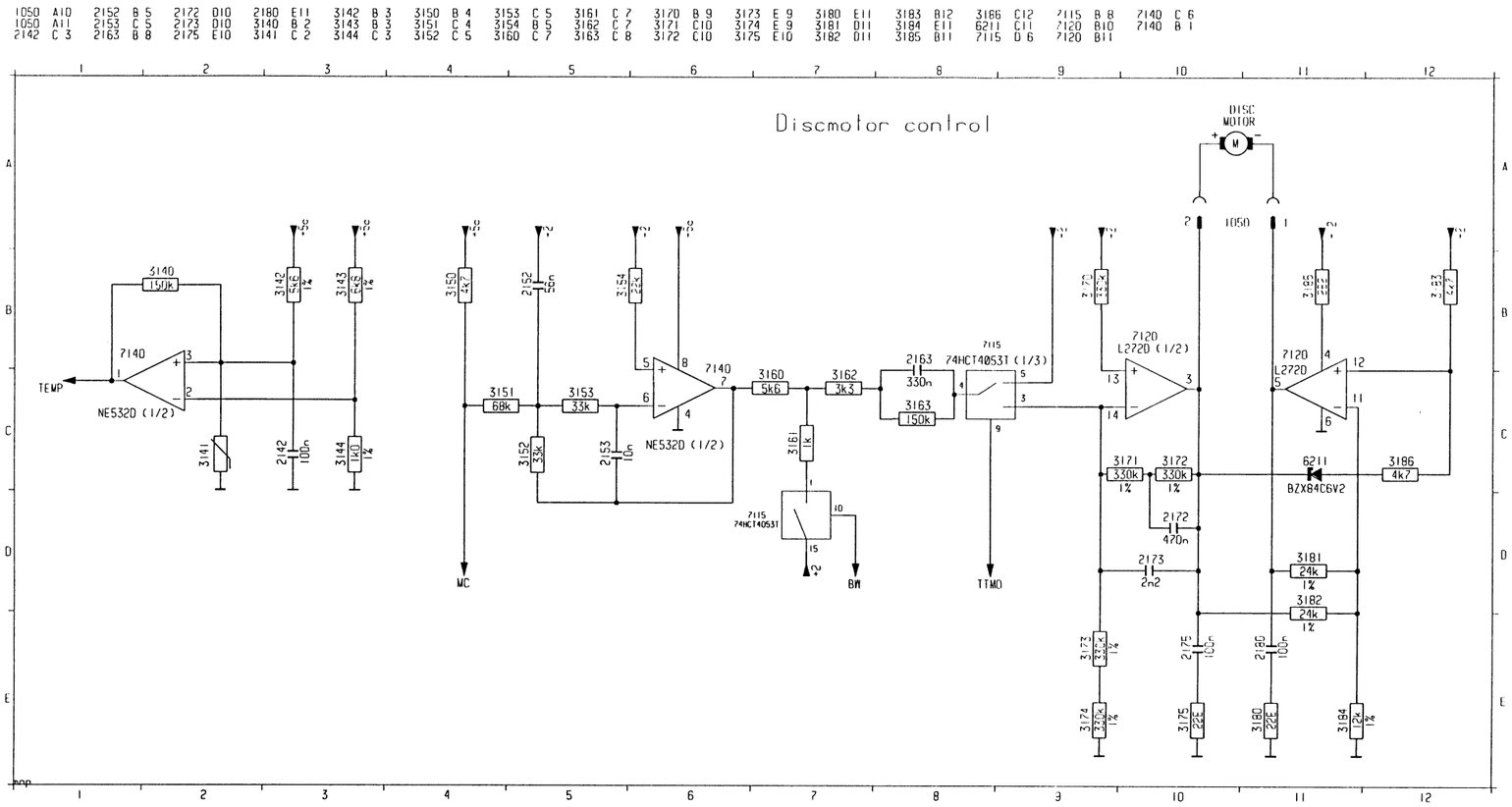
POS. 7190 SAA 7310

1: nc	23: data
2: see DATA (P) / 0 V (S,O)	24: see MC (P) / 0,0 V
3: 2,5 V (P) / 0,0 V (S,O)	25: 2,2 V (P) / 5,0 V (S,O)
4: see WS (P) / 0,0 V (S,O)	26: 1,8 V (P) / 0,0 V
5: 5,0 V (P,S,O)	27: GND
6: nc	28: 5,0 V (P,S,O)
7: data	29: 2,5 V (P) / 5,0 V (S,O)
8: data	30: 1,5 V (P,S,O)
9: data	31: 1,9 V (P,S,O)
10: data	32: 1,9 V (P,S,O)
11: data	33: nc
12: data	34: 3,9 V (P,S,O)
13: data	35: 5,0 V (P,S,O)
14: data	36: 5,0 V (P) / 0,0 V (S,O)
15: 0,8 V (P)	37: see QDA (P) / 0,0 V (S,O)
16: data	38: see QRA (P) / 40 mV (S,O)
17: nc	39: nc
18: 5,0 V (P) / 0,0 V (S,O)	40: see QCL (P) / 5,0 V (S,O)
19: data	41: 19 mV (P) / 0,0 V (S,O)
20: data	42: see SSM (P) / 0,0 V (S,O)
21: data	43: nc
22: 2,5 V (P)	44: nc



POS. 7230 SAA 7320

1: 2,6 V (P,S,O)	23: 5,0 V (P,S,O)
2: AF (P) / 1,3 V (S,O)	24: nc
3: 2,6 V (P,S,O)	25: 1,5 V (P) / 0,0 V (S,O)
4: GND	26: nc
5: GND	27: GND
6: GND	28: GND
7: 2,6 V (P,S,O)	29: GND
8: AF (P) / 1,3 V (S,O)	30: see WS (P) / 0,0 V (S,O)
9: 2,6 V (P,S,O)	31: 2,5 V (P) / 5,0 V (S,O)
10: AF 2,5 V (P) / 2,5 V (S,O)	32: see DATA (P) / 5,0 V (S,O)
11: 5,0 V (P,S,O)	33: nc
12: 2,5 V (P,S,O)	34: 19 mV (P) / 0,0 V (S,O)
13: 2,4 V (P,S,O)	35: 5,0 V (P) / 0,0 V (S,O)
14: AF 2,5 V (P) / 2,5 V (S,O)	36: 5,0 V (P,S,O)
15: 5,0 V (P,S,O)	37: nc
16: 2,6 V (P,S,O)	38: nc
17: 2,4 V (P,S,O)	39: 5,0 V (P,S,O)
18: nc	40: AF 2,5 V (P) / 2,5 V (S,O)
19: nc	41: 2,4 V (P,S,O)
20: nc	42: 2,5 V (P,S,O)
21: nc	43: 5,0 V (P,S,O)
22: 5,0 V (P,S,O)	44: AF 2,5 V (P) / 2,5 V (S,O)



POS. 7115 74HCT 4053T

1: 2,5 V (P) / 3,7 V (S,O)
2: nc
3: 2,7 V (P,S,O)
4: 2,6 V (P,S,O)
5: 2,5 V (P,S,O)
6: GND
7: GND
8: GND
9: 5,0 V (P) / 0,0 V (S,O)
10: 5,0 V (P) / 0,0 V (S,O)
11: 4,5 V (P,S,O)
12: 2,3 V (P) / 5,0 V (S,O)
13: 4,7 V (P) / 5,0 V (S,O)
14: 4,7 V (P) / 5,0 V (S,O)
15: 2,5 V (P,S,O)
16: 5,0 V (P,S,O)

POS. 7120 L 272D

1: nc
2: nc
3: 5,4 V (P) / 5,2 V (S,O)
4: 12,0 V (P,S,O)
5: 4,8 V (P) / 5,2 V (S,O)
6: GND
7: nc
8: nc
9: nc
10: nc
11: 2,6 V (P,S,O)
12: 2,6 V (P,S,O)
13: 2,1 V (P,S,O)
14: 2,7 V (P,S,O)
15: nc
16: nc

POS. 7140 NE 532D

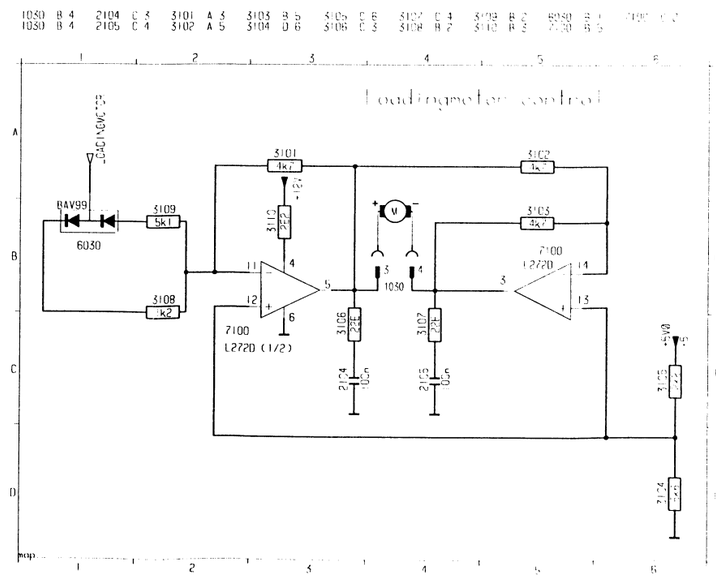
1: 3,9 V (P,S,O)
2: 0,6 V (P,S,O)
3: 2,3 V (P,S,O)
4: GND
5: 2,5 V (P,S,O)
6: 2,6 V (P,S,O)
7: 2,6 V (P) / 3,7 V (S,O)
8: 5,2 V (P,S,O)

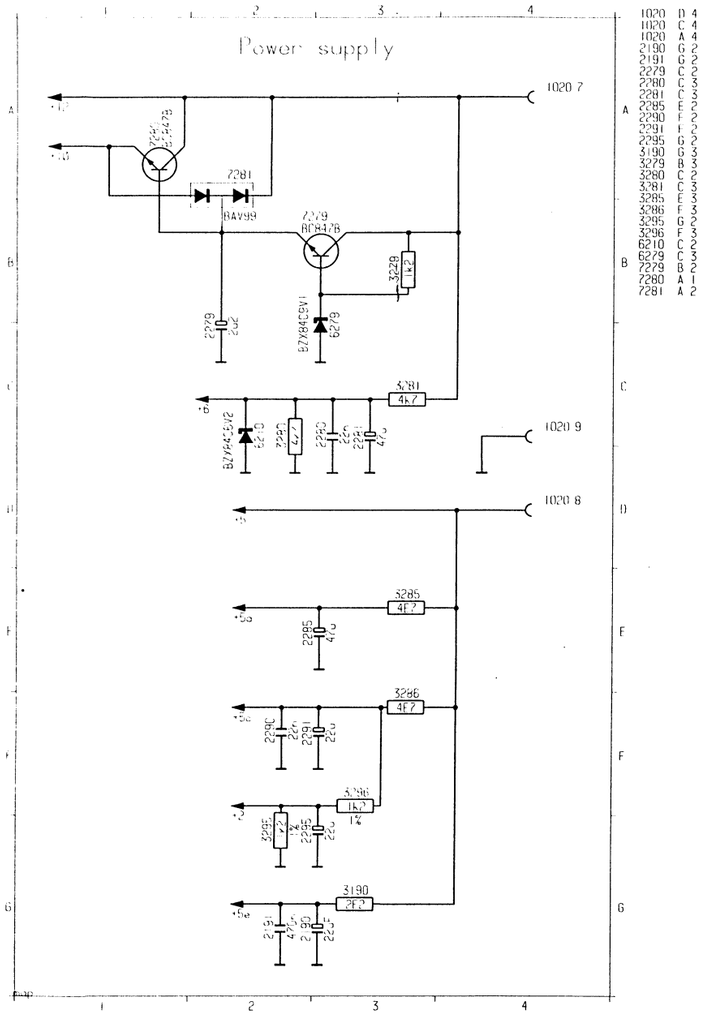
POS. 6030 BAV 99

B: 3,7 V (P,S,O)
C: 3,4 V (P,S,O)
E: 3,7 V (P,S,O)

POS. 7100 L 272D

1: nc
2: nc
3: 3,7 V (P) / 3,6 V (S,O)
4: 12,0 V (P,S,O)
5: 3,7 V (P) / 3,6 V (S,O)
6: GND
7: nc
8: nc
9: nc
10: nc
11: 3,6 V (P,S,O)
12: 3,6 V (P,S,O)
13: 3,6 V (P,S,O)
14: 3,6 V (P,S,O)
15: nc
16: nc





POS. 7279 BC 847B

B: 9,5 V (P,S,O)
C: 12,0 V (P,S,O)
E: 9,0 V (P,S,O)

POS. 7281 BAV 99

B: 8,4 V (P,S,O)
C: 9,0 V (P,S,O)
E: 12,0 V (P,S,O)

POS. 7280 BC 847B

B: 9,0 V (P,S,O)
C: 12,0 V (P,S,O)
E: 8,4 V (P,S,O)

POS. 7116 MC 68HC05C8

1: 5,0 V (P,S,O)
2: see MRQ (P) / 5,0 V (S,O)
3: nc
4: 5,0 V (P,S,O)
5: see MRQ (P) / 5,0 V (S,O)
6: 2,8 V (P) / 0,0 V (S,O)
7: see SSM (P) / 40 mV (S,O)
8: 0,0 V (P,S,O)
9: 5,0 V (P) / 0,0 V (S,O)
10: 5,0 V (P,S,O)
11: 5,0 V (P,S,O)
12: 2,3 V (P,S,O)
13: see QRA (P) / 40 mV (S,O)
14: see QCL (P) / 5,0 V (S,O)
15: see QDA (P) / 0,0 V (S,O)
16: 3,9 V (P) / 70 mV (S,O)
17: 5,0 V (P,S,O)
18: nc
19: 5,0 V (P) / 0,0 V (S,O)
20: 5,0 V (P,S,O)
21: nc
22: GND
23: nc
24: 3,4 V (P,S,O)
25: 4,5 V (P,S,O)
26: 5,0 V (P) / 0,0 V (S,O)
27: 5,0 V (P) / 0,0 V (S,O)
28: nc
29: 0,0 V (P) / 5,0 V (S,O)
30: see SDA (P) / 5,0 V (S,O)
31: see SCL (P) / 5,0 V (S,O)
32: 3,9 V (P,S,O)
33: nc
34: see MC (P) / 70 mV (S,O)
35: 0,0 V (P,S) / 5,0 V (O)
36: 5,0 V (P,S,O)
37: ⎍⎍⎍ 2,3 V (P) / 5,0 V (S,O)
38: 5,0 V (P) / 0,0 V (S,O)
39: 4,7 V (P) / 5,0 V (S,O)
40: nc
41: 4,7 V (P) / 5,0 V (S,O)
42: 2,7 V (P,S,O)
43: 2,4 V (P,S,O)
44: 5,0 V (P,S,O)

POS. 7085 TCA 0372DP1

1: 6,0 V (P,S,O)
2: 12,0 V (P,S,O)
3: 6,0 V (P,S,O)
4: GND
5: 6,0 V (P,S,O)
6: 6,0 V (P,S,O)
7: 6,0 V (P,S,O)
8: 6,0 V (P,S,O)

POS. 7035 L 272D

1: nc
2: nc
3: 2,6 V (P) / 2,4 V (S,O)
4: 12,0 V (P,S,O)
5: 2,4 V (P) / 2,6 V (S,O)
6: GND
7: nc
8: nc
9: nc
10: nc
11: 2,5 V (P,S,O)
12: 2,5 V (P,S,O)
13: 2,5 V (P,S,O)
14: 2,5 V (P,S,O)
15: nc
16: nc

POS. 7003 TDA 8808T/C3

1: 2,5 V (P) / 0,4 V (S,O)
2: 4,7 V (P) / 5,0 V (S,O)
3: 2,0 V (P) / 2,5 V (S,O)
4: 2,2 V (P,S,O)
5: not const. (P) / 0 V (S,O)
6: 2,8 V (P) / 0,0 V (S,O)
7: 0,6 V (P,S,O)
8: 1,3 V (P,S,O)
9: 0,0 V (P,S,O)
10: 4,6 V (P) / 70 mV (S,O)
11: 4,7 V (P) / 5,0 V (S,O)
12: 5,0 V (P) / 0,0 V (S,O)
13: GND
14: 2,8 V (P) / 3,8 V (S,O)
15: 2,5 V (P,S,O)
16: 2,5 V (P,S,O)
17: 3,4 V (P) / 0 V (S,O)
18: 0,2 V (P) / 0,0 V (S,O)
19: 1,7 V (P) / 4,2 V (S,O)
20: 2,9 V (P) / 3,7 V (S,O)
21: 2,9 V (P) / 3,7 V (S,O)
22: 1,3 V (P) / 0,0 V (S,O)
23: 1,3 V (P) / 0,0 V (S,O)
24: 1,3 V (P) / 0,0 V (S,O)
25: 1,3 V (P) / 0,0 V (S,O)
26: 1,4 V (P,S,O)
27: GND
28: 3,2 V (P) / 3,6 V (S,O)

POS. 7025 BC 868

B: 3,5 V (P) / 0 V (S,O)
C: 3,8 V (P) / 4,7 V (S,O)
E: 2,8 V (P) / 0 V (S,O)

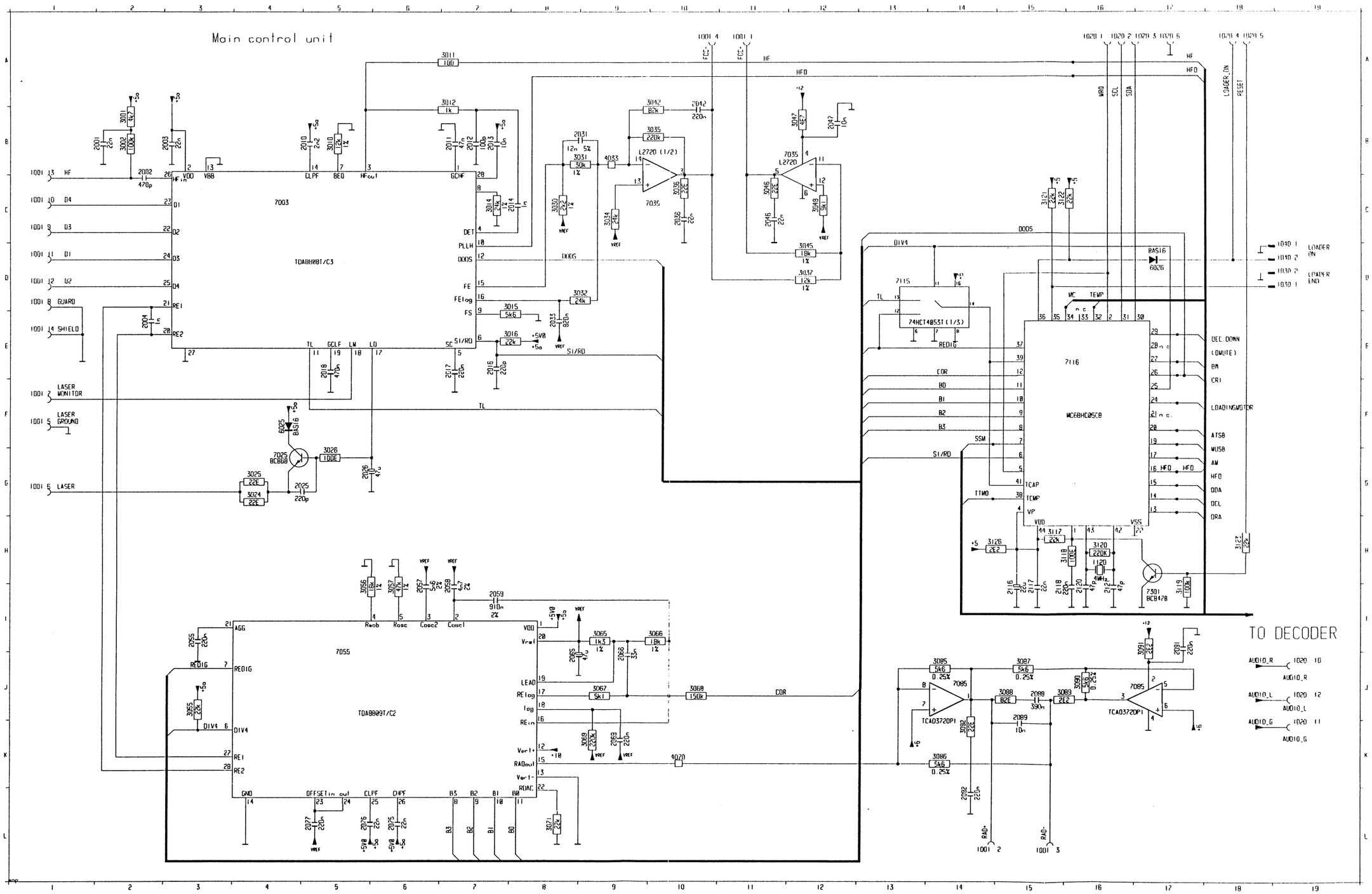
POS. 7055 TDA 8809T/C2

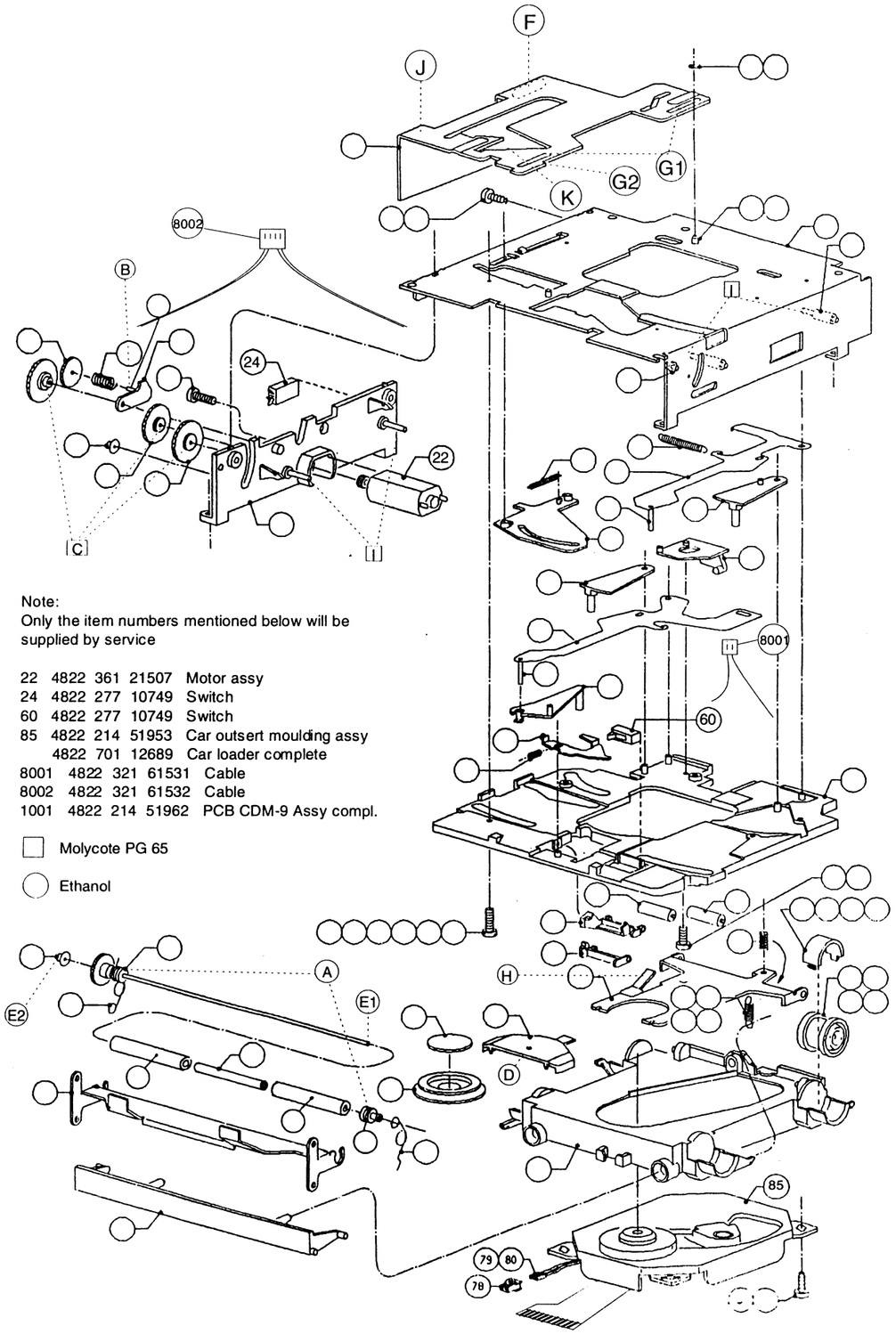
1: 4,7 V (P) / 5,0 V (S,O)
2: sinus 2,5 V (P,S,O)
3: sinus 2,5 V (P,S,O)
4: 0,1 V (P,S,O)
5: 1,3 V (P,S,O)
6: 4,5 V (P,S,O)
7: ⎍⎍⎍ 2,3 V (P) / 5,0 V (S,O)
8: 0,0 V (P,S,O)
9: 5,0 V (P) / 0,0 V (S,O)
10: 5,0 V (P,S,O)
11: 5,0 V (P,S,O)
12: 8,4 V (P,S,O)
13: GND
14: GND
15: 6,0 V (P,S,O)
16: 2,5 V (P,S,O)
17: 2,5 V (P,S,O)
18: 2,5 V (P,S,O)
19: 2,5 V (P,S,O)
20: 2,5 V (P,S,O)
21: not const. (P) / 1,0 V (S,O)
22: 1,2 V (P,S,O)
23: not const. (P) / 0,6 V (S,O)
24: not const. (P) / 0,6 V (S,O)
25: 2,6 V (P) / 5,0 V (S,O)
26: 2,0 V (P) / 4,3 V (S,O)
27: 2,9 V (P) / 3,7 V (S,O)
28: 2,9 V (P) / 3,7 V (S,O)

POS. 7301 BC 847B

B: 20 mV (P,S,O)
C: 5,0 V (P,S,O)
E: GND

Main control unit





Note:
Only the item numbers mentioned below will be supplied by service

22	4822	361	21507	Motor assy
24	4822	277	10749	Switch
60	4822	277	10749	Switch
85	4822	214	51953	Car outsert moulding assy
	4822	701	12689	Car loader complete
8001	4822	321	61531	Cable
8002	4822	321	61532	Cable
1001	4822	214	51962	PCB CDM-9 Assy compl.

☐ Molycote PG 65

◯ Ethanol

LUBRICATING INSTRUCTIONS

Car loader

* A) The roller spindle (pos 28) : 2 x on diameter 2,5 mm.
(On the bearing points)

* B) The spindle of the swing bracke (all lenght).

* C) The spindles of the gearwheels (3 x all lenght).

* D) The pivot bearing of the pivot cover (pos 69)
(in the middle of the closing plate)

* E) E1 The roller spindle on the top on diameter 1,2 mm
E2 The metal pin on the motorplate assy (pos 15)
(Diameter 1,2 mm).

* F) The sliding surface on the top control bracket (pos 73)
in which the plastic pen of the motorplate assy is guiding.

* G) G1 The guiding grooves (2 x) on the control bracket in
which the guide pins of the chassis are guiding.
G2 The tag on the control bracket which actuate the switch brackets.

* H) The tag on the pressure plate (pos 66).

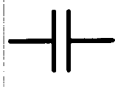
\# I) The suspension pins (2 x) of the chassis.
The suspension pins (2 x) of the motorplate assy.

* J) The teeth of the control bracket.

* K) On the control bracket the sliding surface of the detection bracket.

* MOLYCOTE PG 65/Q5-7565 code nr. 1304 501 0841

\# ETHANOL code nr. 1322 506 35201



2001	5322 122 32654	22NF10%X7R 63V
2002	5322 122 32268	470PF 10% 50V
2003	5322 122 32654	22NF10%X7R 63V
2004	4822 122 31746	1NF 2%NP0 63V
2010	5322 122 33816	2,2NF 5%NP0 50V
2011	4822 122 32542	47NF10%X7R 63V
2012	5322 122 32531	100PF 5%NP0 50V
2013	4822 122 33177	10NF 20% X7R 50V
2014	4822 122 31746	1NF 2%NP0 63V
2016	4822 122 33584	220PF 5%
2017	4822 122 32916	220NF10%X7R 63V
2018	5322 122 32988	470NF10%X7R 50V
2025	4822 122 33584	220PF 5%
2026	4822 124 22646	47UF20% 16V
2031	4822 126 12104	12NF 5%
2033	4822 121 51436	820NF10% 63V
2036	5322 122 32654	22NF10%X7R 63V
2042	4822 126 12106	220NF 5%
2046	5322 122 32654	22NF10%X7R 63V
2047	4822 122 33177	10NF 20% X7R 50V
2055	4822 122 32916	220NF10%X7R 63V
2057	4822 121 51361	5,6NF 2% 160V
2058	4822 121 51051	4.7NF 1% 160V
2059	4822 121 51262	910PF 1% 400V
2065	4822 124 22646	47UF20% 16V
2066	4822 126 12105	33NF 5%
2069	4822 122 32916	220NF10%X7R 63V
2075	5322 122 32654	22NF10%X7R 63V
2076	5322 122 32654	22NF10%X7R 63V
2077	4822 122 32916	220NF10%X7R 63V
2088	4822 126 12107	390NF10%
2089	4822 122 33177	10NF 20% X7R 50V
2091	4822 122 32916	220NF10%X7R 63V
2092	4822 122 32916	220NF10%X7R 63V
2104	4822 122 33496	100NF10%X7R 63V
2105	4822 122 33496	100NF10%X7R 63V
2116	4822 124 80112	22UF-10+50% 6.3V
2117	5322 122 32654	22NF10%X7R 63V
2118	4822 122 32916	220NF10%X7R 63V
2120	5322 122 32452	47PF 5% 50V
2121	5322 122 32452	47PF 5% 50V
2142	4822 122 33496	100NF10%X7R 63V
2152	4822 122 32183	56NF10% 50V
2153	4822 122 33177	10NF 20% X7R 50V
2163	4822 122 33001	330NF 10%X7R 50V
2172	5322 122 32988	470NF10%X7R 50V
2173	5322 122 33816	2,2NF 5%NP0 50V
2175	4822 122 33496	100NF10%X7R 63V
2180	4822 122 33496	100NF10%X7R 63V
2190	4822 124 80112	22UF-10+50% 6.3V
2191	5322 122 32988	470NF10%X7R 50V
2192	5322 122 32452	47PF 5% 50V
2193	5322 122 33816	2,2NF 5%NP0 50V
2194	5322 122 32988	470NF10%X7R 50V
2201	5322 122 32654	22NF10%X7R 63V
2209	4822 124 80113	2.2UF-10+50% 40V
2216	5322 122 32654	22NF10%X7R 63V
2220	5322 122 32658	22PF 5% 50V
2221	5322 122 32658	22PF 5% 50V
2222	4822 122 33283	150PF 5%NP0 50V
2230	5322 126 10328	1500PF 5% NP0 63V
2231	5322 122 32452	47PF 5% 50V
2232	4822 122 31773	560PF 5% 50V
2233	4822 122 31746	1NF 2%NP0 63V
2234	5322 122 32531	100PF 5%NP0 50V
2235	4822 124 22646	47UF20% 16V
2236	4822 124 80111	10UF20% 50V
2237	4822 122 33496	100NF10%X7R 63V
2240	4822 122 33496	100NF10%X7R 63V
2241	5322 122 32531	100PF 5%NP0 50V
2242	4822 124 22646	47UF20% 16V
2245	4822 122 33496	100NF10%X7R 63V
2246	4822 124 23281	33UF20% 16V
2247	4822 122 31746	1NF 2%NP0 63V
2248	4822 122 31773	560PF 5% 50V
2249	4822 124 23281	33UF20% 16V
2250	4822 124 23281	33UF20% 16V
2251	4822 122 33496	100NF10%X7R 63V
2252	4822 122 33496	100NF10%X7R 63V
2253	4822 122 33496	100NF10%X7R 63V
2254	4822 122 33496	100NF10%X7R 63V
2255	4822 122 33496	100NF10%X7R 63V
2256	4822 124 23281	33UF20% 16V
2257	5322 122 32452	47PF 5% 50V
2258	5322 126 10328	1500PF 5% NP0 63V
2259	4822 124 23281	33UF20% 16V
2279	4822 124 80113	2.2UF-10+50% 40V
2280	5322 122 32654	22NF10%X7R 63V
2281	4822 124 22646	47UF20% 16V
2285	4822 124 80112	22UF-10+50% 6.3V
2290	5322 122 32654	22NF10%X7R 63V
2291	4822 124 80112	22UF-10+50% 6.3V
2295	4822 124 80112	22UF-10+50% 6.3V

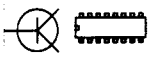
3001	4822 051 20472	4K70 5% 0,1W
3002	4822 051 20104	100K00 5% 0,1W
3010	4822 051 51203	12K00 1% 0,125W
3011	4822 051 20101	100R00 5% 0,1W
3012	4822 051 20102	1K00 5% 0,1W
3014	4822 051 52403	24K00 1% 0,125W
3015	4822 051 20562	5K60 5% 0,1W
3016	4822 051 20223	22K00 5% 0,1W

3024	4822 051 20229	22R00	5%	0,1W
3025	4822 051 20229	22R00	5%	0,1W
3026	4822 051 20101	100R00	5%	0,1W
3030	4822 051 52202	2K20	1%	0,125W
3031	4822 051 53003	30K00	1%	0,125W
3032	4822 051 20243	24K00	5%	0,1W
3034	4822 051 20243	24K00	5%	0,1W
3035	4822 051 20224	220K00	5%	0,1W
3036	4822 051 20229	22R00	5%	0,1W
3037	4822 051 51203	12K00	1%	0,125W
3042	4822 051 20823	82K00	5%	0,1W
3045	4822 051 51803	18K00	1%	0,125W
3046	4822 051 20229	22R00	5%	0,1W
3047	4822 051 20478	4R70	5%	0,1W
3048	4822 051 20912	9K10	5%	0,1W
3055	4822 051 20223	22K00	5%	0,1W
3056	4822 051 51803	18K00	1%	0,125W
3057	4822 051 54703	47K00	1%	0,125W
3065	4822 051 51302	1K30	1%	0,125W
3066	4822 051 51803	18K00	1%	0,125W
3067	4822 051 20512	5K10	5%	0,1W
3068	4822 051 20154	150K00	5%	0,1W
3069	4822 051 20224	220K00	5%	0,1W
3071	4822 051 20223	22K00	5%	0,1W
3085	4822 116 83634	5K6	0,25%	0.25W
3086	4822 116 83634	5K6	0,25%	0.25W
3087	4822 116 83634	5K6	0,25%	0.25W
3088	4822 051 10829	82R00	2%	0,25W
3089	4822 050 22208	2R20	1%	0,6W
3090	4822 116 83634	5K6	0,25%	0.25W
3091	4822 051 10228	2R20	5%	0,25W
3092	4822 051 20229	22R00	5%	0,1W
3101	4822 051 20472	4K70	5%	0,1W
3102	4822 051 20472	4K70	5%	0,1W
3103	4822 051 20472	4K70	5%	0,1W
3104	4822 051 20562	5K60	5%	0,1W
3105	4822 051 20222	2K20	5%	0,1W
3106	4822 051 20229	22R00	5%	0,1W
3107	4822 051 20229	22R00	5%	0,1W
3108	4822 051 20122	1K20	5%	0,1W
3109	4822 051 20512	5K10	5%	0,1W
3110	4822 051 20228	2R20	5%	0,1W
3117	4822 051 20223	22K00	5%	0,1W
3118	4822 051 20101	100R00	5%	0,1W
3119	4822 051 20334	330K00	5%	0,1W
3120	4822 051 20224	220K00	5%	0,1W
3121	4822 051 20223	22K00	5%	0,1W
3122	4822 051 20223	22K00	5%	0,1W
3123	4822 051 20104	100K00	5%	0,1W
3126	4822 051 20228	2R20	5%	0,1W
3140	4822 051 20154	150K00	5%	0,1W
3141	4822 116 30426	4K7	3%	0.1W
3142	4822 051 55602	5K60	1%	0,125W
3143	4822 051 56802	6K80	1%	0,125W
3144	4822 051 51002	1K00	1%	0,125W
3150	4822 051 20472	4K70	5%	0,1W
3151	4822 051 20683	68K00	5%	0,1W
3152	4822 051 20333	33K00	5%	0,1W
3153	4822 051 20333	33K00	5%	0,1W
3154	4822 051 20223	22K00	5%	0,1W
3160	4822 051 20562	5K60	5%	0,1W
3161	4822 051 20102	1K00	5%	0,1W
3162	4822 051 20332	3K30	5%	0,1W
3163	4822 051 20154	150K00	5%	0,1W
3170	4822 051 20334	330K00	5%	0,1W
3171	4822 051 53304	330K00	1%	0,125W
3172	4822 051 53304	330K00	1%	0,125W
3173	4822 051 53304	330K00	1%	0,125W
3174	4822 051 53304	330K00	1%	0,125W
3175	4822 051 20229	22R00	5%	0,1W
3180	4822 051 20229	22R00	5%	0,1W
3181	4822 051 52403	24K00	1%	0,125W
3182	4822 051 52403	24K00	1%	0,125W
3183	4822 051 20472	4K70	5%	0,1W
3184	4822 051 51203	12K00	1%	0,125W
3185	4822 051 20228	2R20	5%	0,1W
3186	4822 051 20472	4K70	5%	0,1W
3190	4822 051 20228	2R20	5%	0,1W
3192	4822 051 20222	2K20	5%	0,1W
3194	4822 051 20223	22K00	5%	0,1W
3201	4822 051 20912	9K10	5%	0,1W
3202	4822 051 20392	3K90	5%	0,1W
3203	4822 051 20162	1K60	5%	0,1W
3208	4822 051 20185	1M80	5%	0,1W
3209	4822 051 20759	75R00	5%	0,1W
3220	4822 051 20105	1M00	5%	0,1W
3221	4822 051 20223	22K00	5%	0,1W
3222	4822 051 20104	100K00	5%	0,1W
3223	4822 051 20102	1K00	5%	0,1W
3224	4822 051 20101	100R00	5%	0,1W
3225	4822 051 20102	1K00	5%	0,1W
3226	4822 051 20102	1K00	5%	0,1W
3227	4822 051 20102	1K00	5%	0,1W
3230	4822 051 20103	10K00	5%	0,1W
3231	4822 051 20105	1M00	5%	0,1W
3232	4822 051 53003	30K00	1%	0,125W
3233	4822 051 20562	5K60	5%	0,1W
3234	4822 051 20752	7K50	5%	0,1W
3235	4822 051 20562	5K60	5%	0,1W
3237	4822 051 20479	47R00	5%	0,1W
3238	4822 051 20103	10K00	5%	0,1W
3239	4822 051 20479	47R00	5%	0,1W
3240	4822 051 20478	4R70	5%	0,1W
3241	4822 051 20478	4R70	5%	0,1W
3242	4822 051 20752	7K50	5%	0,1W
3243	4822 051 20562	5K60	5%	0,1W

3244	4822 051 20103	10K00	5%	0,1W
3245	4822 051 20562	5K60	5%	0,1W
3246	4822 051 53003	30K00	1%	0,125W
3247	4822 051 20105	1M00	5%	0,1W
3248	4822 051 20478	4R70	5%	0,1W
3249	4822 051 20478	4R70	5%	0,1W
3250	4822 051 20103	10K00	5%	0,1W
3254	4822 051 20339	33R00	5%	0,1W
3255	4822 051 20478	4R70	5%	0,1W
3279	4822 051 20122	1K20	5%	0,1W
3280	4822 051 20472	4K70	5%	0,1W
3281	4822 051 20472	4K70	5%	0,1W
3285	4822 051 20228	2R20	5%	0,1W
3286	4822 051 20478	4R70	5%	0,1W
3295	4822 051 51202	1K20	1%	0,125W
3296	4822 051 51202	1K20	1%	0,125W

4033	4822 051 20008	0R00	5%	0,1W
4070	4822 051 20008	0R00	5%	0,1W
4090	4822 051 20008	0R00	5%	0,1W
4092	4822 051 20008	0R00	5%	0,1W
4094	4822 051 10008	0R00	5%	0,25W
4096	4822 051 10008	0R00	5%	0,25W
4207	4822 051 20008	0R00	5%	0,1W
4208	4822 051 20008	0R00	5%	0,1W
5230	4822 157 60122			
5231	4822 157 63866	820UH	20%	
5232	4822 157 63866	820UH	20%	

6025	5322 130 31928	BAS16
6026	5322 130 31928	BAS16
6030	5322 130 34337	BAV99
6210	5322 130 33671	BZX84-C6V2
6211	5322 130 33671	BZX84-C6V2
6279	4822 130 33996	BZX84-C9V1



7003	4822 209 73234	TDA8808T/C3
7025	5322 130 61569	BC868
7035	4822 209 31131	L272D
7055	4822 209 73235	TDA8809T/C2
7085	4822 209 62059	TCA0372DP1
7100	4822 209 31131	L272D
7115	5322 209 14481	HEF4053BT
7116	4822 209 31127	MC68HC705C8CFM -PROG.
7120	4822 209 31131	L272D
7140	5322 209 71553	NE532D
7190	4822 209 61759	SAA7310GP/H5
7203	4822 130 42131	BF550
7215	4822 209 31128	UPD41464L-10
7221	4822 130 60511	BC847B
7230	4822 209 63997	SAA7323GP
7279	4822 130 60511	BC847B
7280	4822 130 60511	BC847B
7281	5322 130 34337	BAV99
7301	4822 130 60511	BC847B

Miscellaneous

1	4822 502 11751	M2,5X5PAN ZNBK
2	4822 502 30541	2,2X8PT/PAN+STZN
1001	4822 214 51962	BOARD PRINTED
1001	4822 267 50838	14 PIN
1020	4822 265 41209	12 P
1030	4822 265 30957	4 P
1040	4822 265 30956	2 P
1050	4822 265 30958	2 P
1120	4822 242 70831	CSA4,00MG
1220	4822 242 81164	AT-51(11.2896MHZ)
85	4822 214 51953	CAR OUTSERT MOULDING
1002	4822 691 10366	MECH.UNIT CD-PL
22	4822 361 21507	MOTOR ASSY
60	4822 277 10749	SWITCH
8002	4822 321 61532	RFK 5 ASSY L80 4P
8 1 1	4822 529 10277	DAMPER
8001	4822 321 61531	RFK 5 ASSY L80 2P
9 1 1	4822 529 10277	DAMPER
10 1 1	4822 529 10277	DAMPER
11 1 1	4822 529 10277	DAMPER
22 1 1	4822 361 21507	MOTOR
24 1 1	4822 277 10749	SWITCH
60 1 1	4822 277 10749	SWITCH
8001 1	4822 321 61531	CABLE, CONNECT
3 8001	4822 267 30871	CONNECTOR 2P
8002 1	4822 321 61532	CABLE, CONNECT
5 8002	4822 267 40672	DISC 4POL
81 1	4822 691 30275	MECH. UNIT CDM-9
8 81 1	4822 701 10425	M 2 X10T/PAN ZNBK
9 81 1	4822 701 10425	M 2 X10T/PAN ZNBK
2001	4822 122 33496	100NF10%X7R 63V
1003	4822 267 51146	CONNECTOR